

# Alternative Microeconomics

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## One Chapter The Nature of Economics

### I Introduction to the Nature of Economics

*The economic problem is one of provisioning and allocation*

**A**rcheological and written records of human existence suggest that obtaining the material means to satisfy wants has been a perpetual problem. Food and shelter are requirements of human life. Other goods satisfy a range of human desires and give pleasure or utility to individuals. The study of ways that humans deal with these issues and challenges is called "economics."

*Social and economic systems are interrelated*

The evolution of processes to solve the provisioning problem takes place in a social context. As a result, the economy is a system and is interrelated with a variety of other social systems. These systems include (but are not limited to) economic, political, religious, social, geographic, demographic, legal, and moral systems. The psychology of individuals is also fundamental to the social system. From the time of the Greeks (e.g. Xenophon [430-355 BCE], Plato [427-347 BCE] and Aristotle [384-322 BCE]) through the Classical economists (e.g. Adam Smith [1723-1791], Thomas Malthus [1766-1834] and David Ricardo [1772-1823]), economics was treated as part of philosophy, religion and/or moral philosophy.

*Shift from "political economy" to economics*

During the 19<sup>th</sup> century, the social sciences emerged and separate disciplines were carved out. Economics, psychology, sociology, politics, anthropology and other branches of social science developed as separate fields of study. In the last part of the 19<sup>th</sup> century, "political economy" became "economics." Since that time, economics has been frequently defined as "the study of how scarce resources are allocated to satisfy unlimited wants." As a professional discipline, economics is often regarded as a decision science that seeks optimal solutions to technical allocation problems. In this text, economics is presented from two perspectives. One perspective is the technical analysis of the processes by which scarce resources are allocated for competing ends. An alternative perspective is the social context of provisioning.

#### ECONOMICS AS A STUDY OF THE ALLOCATION OF SCARCE RESOURCES

*Economics as a decision science*

**F**rom a technical perspective, economics is the study of how various alternatives or choices are evaluated to best achieve a given objective. The domain of economics is the study of processes by which scarce resources are allocated to satisfy unlimited wants. Ideally, the resources are allocated to their highest valued uses. Supply, demand, preferences, costs, benefits, production relationships and exchange are tools that are

used to describe and analyze the market processes by which individuals allocate scarce resources to satisfy as many wants as possible. This increasingly narrow focus is the domain of modern, "neoclassical," microeconomic analysis. This approach is typical of most economists and is referred to as orthodox economics.

The five basic questions that are asked in the study of the allocation problem are:

*Allocation questions are:*

- 1) *What to produce?*
- 2) *How many to produce?*
- 3) *How to produce?*
- 4) *When to produce?*
- 5) *Who gets it?*

1. **What goods and services should be produced?** This requires a valuation or ranking of goods and services from most valued to least valued.
2. **How many units of each good (or service) should be produced?** Since not everything can be produced, some goods must be sacrificed for other goods.
3. **How should those goods (and services) be produced?** There are often different ways to produce a good. The amount of the good to be produced may influence the ways in which a good is produced.
4. **When should the goods (and services) be produced?** The time that a good (or service) is available may affect its value. Producers of skis must have their new equipment ready for the ski season. Economists, accountants and others use the concept of present value to adjust the value of goods (or money) that will be acquired at some point in the future. Generally, goods to be obtained or consumed at some future date are perceived to have a lower value than those available currently.
5. **How should those goods (and services) be distributed among the members of society?** Societies must devise rules or principles that govern how goods are shared or distributed among its members. The ways that goods are distributed may alter incentives that influence the behavior of individuals. The distribution of goods among the members of society may also influence the ways in which different goods are valued.

## ECONOMICS AS A STUDY OF PROVISIONING

*Provisioning is the process of framing the approaches to the allocation problem.*

**P**rovisioning is the social process that establishes the framework of social institutions, values, beliefs, knowledge, and infrastructure within which the allocation of resources takes place. This social framework is the foundation that influences the individuals' perceptions, preferences and responses to the problems of what, how much, how, when and who gets it. The provisioning process frames or defines the approaches to allocating resources and goods.

The legal system, property rights, the existence of markets, organizational structures (corporations, governmental units, etc), religious beliefs, standards of morality and family/kinship relationships are a few examples the elements of the social framework. The matrix of these elements can be structured in almost an infinite number of ways resulting in different approaches to the allocation questions.

Economics as a study of provisioning is a social science and tries to understand the historical and philosophical context of the allocation problem. It is a study of the nature of the ends and processes as well as the means. The allocation problem is one aspect of the provisioning problem.

*Provisioning should seek to understand the nature of wants or objectives.*

If we are to study the allocation of resources to competing ends, what is the nature and origin of the ends (goals, objectives)? Individuals have goals. To what extent are these goals shaped by different forces in society? How do

individuals' objectives shape society? Why do individuals value some goods (or services) more highly than others? Are some goods more valuable to the functioning of society than others?

*Provisioning should seek to understand the social principles or rules of allocation.*

The study of the economics of provisioning must also consider alternative rules or principles that a society might use to structure the allocative mechanisms. Different societies have devised sets of institutions and beliefs to allocate resources. In some cases traditions, customs and mores guide individual behavior. In other cases, a central authority uses commands to regulate individual choice. Voluntary interaction among the members of society is another alternative. In most cases, societies rely on a mix of culture, tradition, command and voluntary interaction.

Economics as a study of provisioning includes the historical and philosophical foundations and context of economic behavior. The tradeoffs between the economic and non-economic goals are considered. The interrelationships of economic life with justice, ethics, morality, creativity, security and aesthetic values are of concern. Human societies have attempted a broad array of alternative systems to deal with the problem of provisioning. Some have been more successful and other less so. Some systems have lasted for thousands of years with few changes. Other systems have come and gone quickly. In some cases, environmental problems have caused the demise of societies. In other cases, the societies ended abruptly with social revolution. Some societies have adapted to changing circumstances and evolved over time. Mayan, Roman, Incan are only a few examples of societies that have come and gone. Archeological studies continually find evidence of societies that flourished and ultimately failed. In some cases they were destroyed from outside forces; examples include the Aztec and Incan societies. In other cases, the causes were environmental; it is believed that a drought may have been responsible for a dramatic change in the Mayan society. The aboriginals in Australia have one of the oldest continually functioning societies.

*Some societies are more successful in devising systems to solve the provisioning problem.*

*Economics as a study of provisioning considers relationships;*  
1) Among individuals  
2) between individuals and society  
3) between individuals and natural and built environments.

Economics as a study of provisioning is concerned with the nature and evolution of the structure of society that consists of a matrix of institutions, values, beliefs, knowledge and resources. This study is concerned with relationships among individuals. The interaction among individuals is a major feature of any economic system. Another important feature of any economic system is the nature of the relationship between individuals and the community. The structure of an economic system must also consider the relationship between individuals and both the natural and built environments. Natural environment refers to the geographic (cultural and physical) and meteorological phenomena. The built environment consists of the infrastructure and knowledge that a society has created and inherited. It should be noted that humans have the capacity to alter their natural and built environments in both positive and negative ways.

## II Social Science and Economics

There is substantial evidence and general agreement that humans live in social groups. The Western tradition, as framed by the Greeks and the Judeo/Christian tradition, holds that humans are social animals.

*Plato's functional foundation for the state*

Plato [427-347 BCE] and Aristotle [384-322 BCE] offer explanations of the rise of the city-state. In *The Republic*, Plato sees the origins of the city-state in the quest for justice. Plato describes a conversation between Socrates and a

group of students. They are pondering the nature of justice. They conclude that justice is each person doing that which they are best suited to do. The person best suited to be a baker should be a baker; the person best suited to be a shepherd should be a shepherd. Once individuals specialize, the city-state arises to facilitate the interactions among the individuals. [*The Republic*, Book II]

*Aristotle's organic composition of the a state*

In *Politics*, Plato's student, Aristotle, sees an organic composition of society. The state becomes a natural community that is treated as an organism. There is a natural progression from individual to family to village to the city-state. The city-state is then "prior to the family and individual." [*The Politics*, Book I, Chapter 9] Aristotle sees the good life as one where the individual achieves his/her potential in a social context.

*Question of the proper role of individual in the community*

Plato's focus is on justice and Aristotle's is on the "good life." One of the fundamental problems that both identify is the nature of the proper relationship between the individual and society. While Plato and Aristotle take different approaches, both see economic behavior as an integral part of society.

## ROLE OF INDIVIDUAL IN THE COMMUNITY

*How can a society maintain the autonomy of its individual members and provide for the commonweal?*

In economics (and social sciences more generally), the nature of the role of the individual in the community or state has been a persistent question. Every society must address the question (either implicitly or explicitly), "How can the autonomy (or freedom or liberty) of an individual be maintained and at the same time provide for the commonweal (social welfare)?" In some societies, the individual is regarded as more important than the community. In other societies, the community has priority over the individual. From a practical perspective, the problem is to balance the rights and freedom of the individual with the functions of the community.

There are several perspectives about the most appropriate ways to achieve that balance. While dealing with this balance, both the allocation and provisioning problems must be resolved.

## COOPERATION, COMPETITION AND CONSCRIPTION

*Competition and cooperation can be used to coordinate individual behavior*

Ideally, each individual is free to make choices that are consistent with their desires (preferences, values) and at the same time, these choices are consistent with the commonweal. Competition, cooperation and conscription may be used to coordinate individual actions. Different societies have attempted different approaches at different times.

### COOPERATION AND CONSCRIPTION

*Cooperation implies voluntary choice and behavior*

*Conscription implies the use of coercion to force a specific behavioral choice.*

Cooperation implies voluntary agreements and a coordinated approach to the solution of a problem. Conscription implies a non-voluntary or forced behavioral choice in the allocation process. An economic input (labour, capital, land) or good can be conscripted. Conscription implies the ability of one person or group to force another to make choices they would not prefer. Conscription implies that some form of coercion has taken place. Cooperation and conscription are opposite ends of a spectrum or range of behavioral patterns. At another level voluntary and coerced behavior are at opposite ends of a spectrum of motivations.

The degree to which a choice is voluntary or coerced is not always clear. A group of Inuits above the Arctic Circle may use cooperation as an important element of the coordination process. "Cooperation" may be encouraged by

strongly held common values or necessity. Each member of the society understands that their chance for survival is reduced if she or he is not a member of the community. A behavior that is not sanctioned by the community (e.g. theft, murder, or even stating an idea that is not shared by others, etc) may result in the individual being ostracized and expelled from the community, the result being death. Is the acceptance of group values and activities voluntary or coerced? If a government (a formal social institution for allocating power and decision making authority in a community) uses sanctions to force behavior or choice it is clearly coercion and conscription. If I threaten you with harm if you do not make a given choice or act in a specific way, that is coercion. If a person's mother says, "You go ahead but it will break my heart!" is that coercion?

*Voluntary cooperation and coerced conscription are at opposite ends of a continuum.*

Voluntary cooperation and coerced conscription lie at opposite ends of a continuum. It is a variation of the arguments about whether individuals have free will. The shift from voluntary coordinated behavior (cooperation) to coerced coordinated behavior (conscription) is a matter of degrees. In both cases, individuals have an incentive to coordinate their behavior. In the case of coercion, the incentive is the costs created and imposed by other individuals or groups of individuals. A student in high school may feel coerced by their peers, the class bully or the rules of the system. A worker may be coerced by social pressure, other workers, the management of the firm, corporate rules and government regulations.

## COMPETITION

*"Competition" can be a structural characteristic or a rivalry among agents .*

Market oriented societies focus on the use of competition to constrain individual behavior. In Western industrial societies, competition is regarded as the optimal way to coordinate economic behavior. A market exchange is a contract between sellers and buyers where each seeks to optimize their self-interest. The seller competes to get the highest possible price (or best deal), while the buyer competes to buy at the lowest possible price. The competition between the buyer and seller is influenced by the tastes (or preferences), information that each has, the alternatives that each has, their relative incomes and the "rules of the game" (customs, mores, laws, regulations, institutions, ideologies, values, principles, etc).

*"Competition" can be a structural characteristic or a rivalry among agents .*

The word "competition" has at least two meanings in economics. One refers to rivalry. In rivalry, there is a winner and a loser. Tennis players are rivals; one wins, one loses. The other is a structural notion of "pure" competition based on the number of sellers and buyers and their responses within markets. The sellers do not see themselves as rivals (Farmers are often thought of as being engaged in highly competitive markets but do not see themselves as rivals; farmer A will help farmer B harvest her crop.).

## MODERN ECONOMY IS A MIX OF COOPERATION, CONSCRIPTION AND COMPETITION

Generally, societies use a mix of cooperation, conscription and competition. The difference among different economic systems is the degree to which one (or more) of these processes is emphasized. The aboriginal society in Australia has been based on traditions, customs and mores for 40,000 years according to some estimates. Certainly there has been cooperation, conscription and competition as elements of that society. Western industrial societies have emerged in the last 250 to 500 years (depending on the criteria used). In each case, the mix of cooperation, conscription and



competition has been different and resulted in fundamentally different societies with different solutions to the economic problems of allocation and provisioning.

All societies develop social institutions (behavioral patterns) to coordinate the activities of production, distribution and consumption. There is a wide range of forms these institutions may take depending on the physical environment, state of technical knowledge, social values and other factors. These institutions and behavioral patterns may rely on some combination of competition, cooperation. Market systems tend to focus on competition while other systems may have a larger role for cooperation or conscription.

A bicycle race is a useful metaphor. There are rules that govern equipment, use (or nonuse) of drugs, routes and tactics. In a road race, the riders cooperate in the peleton (the large group of riders in a bicycle race) by drafting (using the rider in front to reduce the wind drag). When a group breaks away from the peleton, they typically form a pace line and each shares the work of riding in front of the group. Eventually, the structure of the pace line disintegrates and the riders compete in a sprint to the finish or they fall back into the group. The race is a mixture of cooperation and competition. The rules of the race, the equipment available, the shared values of the racers (expectations about the behavior of other riders), the route and the surface of the course are examples of provisioning. The structure and character of these elements determines the nature of the race. A road race is fundamentally different from a mountain bike race. The ability and determination of each rider, given the structure of the race, determines or allocates the finishing position (winner, 2<sup>nd</sup>, 3<sup>rd</sup>, etc) of each rider. The winner of a mountain bike race may not be the winner in a road race. Soccer and American football have 11 players on each side and a ball. Because the rules are different, a good soccer player may not be a good football player.

In the context of a firm, colleagues cooperate to achieve ends. At the same time, they may compete for promotions or raises. Some one who is too competitive and doesn't cooperate (or is too cooperative and doesn't compete) may not get the big promotion.

*Coordination of individual behavior may be based on competition or cooperation or some combination*

Joan Robinson argues that an economic system "... requires a set of rules, an ideology to justify them, and a conscience in the individual which makes him (sic) strive to carry them out." (Robinson, p 13) Provisioning is the way in which society develops the rules, ideology and conscience. The allocation mechanism is the ways in which individuals choose to act given the rules.

## SOCIAL INTERACTION AND TECHNOLOGY

Humans have sought to solve the problem of provisioning through social interaction and the use of technology. Social interaction is used to refer to the relationships between two or more individuals. In this context, an "individual" has the ability to make a decision and carry that decision out. In legal terms, this individual is called an "agent."

*An agent is an entity that has the power and authority to make a decision and act on that decision.*

An agreement between two individuals or agents is a contract. The agreement may be influenced by social institutions as well as the preferences and values of the individuals. A social institution is a habitual pattern of behavior that is embedded in a social system. Marriage is an example of a social institution. It is a contract between two people. The form of that contract is influenced by commonly held social values and laws

*An agreement between two agents is a contract.*

of a society. Almost all societies have some form of marriage. Marriage is a social creation that provides a solution to the problem of rearing children.

*Institutions facilitate and constrain individual action*

The five-day week, a paid vacation, markets, property rights and religious ceremonies on a specific day of the week are examples of institutions. As a social institution, they may change over time as social values, technology, work and environment change. These institutions may vary from place to place, represent, and encourage different behavioral patterns.

Money, law (or the legal system), property rights and markets are examples of economic institutions. Institutions simultaneously facilitate and constrain human activities. Markets may facilitate voluntary exchange and constrain the range of choices of each individual to the contract at the same time. The market provides the structure that allows two parties to negotiate and enter a contract. The market also uses the willingness of each person involved in the contract to constrain the alternatives open to the other.

Technology is the knowledge about the individuals' relationships with the natural and built environments. This knowledge can be used to alter elements in the environments to satisfy human wants. Technology involves knowledge about alternative ways of solving the problem of provisioning.

### III What is Economics?

**E**conomics has been defined here as both a study of the provisioning problem and the allocation problem. Orthodox economics is defined as the study of how relatively scarce resources are allocated to competing alternative uses within a social context. Some texts define economics as "*the social science concerned with the efficient use of limited or scarce resources to achieve maximum satisfaction of human material wants.*" [McConnell, 2002, p3]

*Economics as a study human and social behavior*

Alfred Marshall states that "... *economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing.*" [Marshall, 8<sup>th</sup> edition, 1920, page 1]

Robert Heilbroner argues that economics has "*been caught between two respectively unsatisfactory definitions: an 'objective' interpretation tied to the idea of wealth, and a 'subjective' one focused on decision making.*" (Heilbroner, *Behind the Veil of Economics*, p14) Heilbroner continues,

*"Both approaches run into trouble. The first because 'objective' wealth cannot be described without reverting to the subjective criterion of utility; the second because the central placement of subjectivity widens economics to the point at which it becomes applicable to everything, and therefore empty of specific 'economic' content.* (Heilbroner p 14)

Heilbroner defines economics as "*the process by which society marshals and coordinates the activities required for it's provisioning.*" (ibid)

*Economics as a study of the process of valuation*

Warren Samuels argues that the "*economy is a process of valuation.... That to behave and to choose is to engage in valuation and thereby to participate in the social, or socioeconomic, valuation process.*" (Samuels p ix) He goes on to point out that "*the economy encompasses more than the market...*" and "*that other nonmarket valuational processes exist.*" [ibid p 16] Some of the other valuation processes are effort, desire and tradition.

Valuation is the process by which individuals assign worth, merit or importance to a phenomenon (good or event). Relative value implies that individuals can rank the value or importance of a set of phenomena. Economics then is the study of processes by which individuals and societies value resources, goods, alternatives, choices, and behavior.

Here economics of provisioning is the study of how individuals in societies provide themselves with the institutions, values, beliefs, ideology, knowledge and infrastructure to provide for their survival and betterment. This process requires the ability to prioritize or value ends and to evaluate means. This is the provisioning problem.

*Resources  
allocated to  
highest valued  
use*

An economic system must also be able to allocate resources or inputs to their highest valued uses. To evaluate the success or failure of an economic system, it is necessary to express values. In spite of the warnings of Oscar Wilde (1854-1900) an Irish playwright who commented "A cynic is someone who knows the price of everything and the value of nothing," market prices are often used as indicators of value. The study of economics as provisioning must include the value of non-market as well as market phenomena.

## MACROECONOMICS

*Macroeconomics  
studies the structure  
and performance of  
the economic system*

**M**acroeconomics is the study of the process and performance of an economic system. Usually the analysis is at a national level but often, regional economies, such as Asian, Latin America, European, North American, are considered. Typically, aggregate levels of employment, economic growth, general levels of prices (inflation/deflation), and business fluctuations are examples of topics in macroeconomics. Macroeconomics includes measurement of economic activity (national income accounting and related data), theories to explain relationships among economic events and economic policies that include monetary and fiscal tools.

## MICROECONOMICS

*Microeconomics as  
the study of  
individual  
economic behavior*

**M**odern microeconomics is the study of the behavior and interactions among the various individuals and organizations within an economic system. Typically, microeconomics considers the forces that shape the behavior of such economic elements as consumers, producers, buyers, sellers, individuals, sole proprietors, partners, corporations, not-for-profit organizations and industries. These interactions are usually described as interactions within the context of markets. Modern neoclassical microeconomics (orthodox economics) is "atomistic" i.e. the individual units are studied and summed to reflect the operation of the whole or system. Most of the explanations are "mechanical" or use "cause and effect" to explain the interactions among individual agents. Economics as provisioning is concerned with the nature of the system in which the individual agents function.

*Allocative mechanisms  
include:*

- Exchange
- Reciprocity
- Eminent domain
- Philanthropy
- Theft

One of the ways that the economic units interact is through market exchange. A market is a social institution that organizes the contractual relationships among all potential buyers and sellers. Since market transactions are observable and quantifiable, microeconomics tends to focus on competition in the context of market exchange. Cooperation and conscription are other approaches that may be used. Reciprocity, philanthropy, theft and eminent domain are processes that societies may use for the allocation of resources and goods.



Market exchange is based on *quid pro quo*. Ideally, it is a voluntary contract between two agents. It specifies what is given and what is to be received. The conditions of payment are known to both parties. Reciprocity is an allocative mechanism based on "obligatory gift giving." If individual A gives individual B a gift or does B a favor, B is obligated to give a gift or return the favor at some point in the future.

*Reciprocity and exchange are important allocative mechanisms.*

Reciprocity requires trust between the participants. A sense of community where expectations and social sanctions may enforce the reciprocal obligations may substitute for trust. Market exchange can occur between anonymous individuals. Trust, social institutions and legal sanctions may be used to enforce the terms of market exchanges.

*Theory is an explanation about how the world works.*

Philanthropy is giving gifts with nothing expected in return. Eminent domain is a form of command enforced by an authority. Theft is the taking of property rights through methods not sanctioned by society.

Theory is an explanation about the way the world works. Economic theory is a set of explanations about how individuals interact with one another and the environment to solve the economic problems. Orthodox microeconomic theory can be thought of as a set of "tools," as a perspective or as a way of thinking. As a set of tools, economic theory can be envisioned as a road map. It does not get us to our objective but it is useful to identify some of the important landmarks or elements on the route to our objective. As a perspective, it emphasizes the importance of the sacrifices that individuals make to achieve ends. Those things we give up to achieve an objective are called tradeoffs. The focus tends to be market oriented and exchange is emphasized.

*Microeconomic theory is set of tools that can be used to explain and/or guide decisions.*

## ECONOMIC DECISIONS

*Behavior is influenced by rules, intuition, emotion, habit and reason*

In a simple taxonomy, individual behavior may be influenced by rules (command), intuition, emotion, habit, reason or some combination. Philosophers and psychologists have struggled with the issue of fate and freewill. The issue has not been resolved. It is not likely that it will be resolved here. The question for economics is to try to understand and explain how humans try to resolve both the problems of provisioning and allocation. They must create the social context in which a solution to the allocation problem is found.

### RULES

If behavior is constrained or influenced by rules, rules of thumb or habits, the nature of those rules and the process by which the rules evolves is of interest to economists. If the agent's decision is constrained, the nature of those constraints is of concern.

*Rules may be implicit or explicit*

Rules may be implicit or explicit. Explicit rules often take the form of law and maybe imposed by governments or organizations. Generally, explicit rules are conscious creations and must be communicated and enforced. Social groups may also use explicit rules. Business firms, churches, and other organizations may explicitly impose rules. Implicit rules may also be important constraints. Implicit rules are not consciously created but must still be communicated implicitly or explicitly. Social expectations, customs, mores and traditions often inform individuals about rules of behavior.

Certain types of behavior are expected and influenced by such social constructs as "manners," mores, custom, rules of thumb and traditions.

These rules are short cuts to problem solving. If over time a particular problem is always, or nearly always, resolved by a specific approach, that approach becomes a habit or rule of thumb. These rules and habits provide ready-made solutions that do not have to be derived by reason or intuition. If a habit, institution or custom fails to provide reasonable solutions over a period of time, new solutions emerge to become new rules, customs or institutions.

## INTUITION

In recent years, there has been a growing interest in the interrelationship between psychology and economics. Daniel Kahneman (Nobel Foundation prize winner) has explored intuition and reason as thinking and decision processes. (Kahneman, pp 1449-1475) According to Kahneman, intuition can be powerful and accurate, requires practice and is "rapid and effortless." The reasoning process provides a check on the intuitive process.

*Decisions may be made through intuition. Intuition is rapid and "effortless."*

## REASON AND RATIONAL BEHAVIOR

Orthodox, modern economic analysis is generally regarded as the study of alternative uses of resources to achieve objectives. At a technical level, economic analysis is used to evaluate rational decisions. Rational behavior requires that the agent has identified an objective or goal and has evaluated all feasible alternatives to select the alternative that best achieves the objective.

*Reason involves an objective and a conscious evaluation of alternatives.*

## INFORMATION

Within any economic system, agents must have information and there must be a set of incentives to encourage appropriate actions. Whether the economic system primarily uses market exchange, reciprocity, eminent domain or some other allocative mechanism, the agents must have information about preferences, inputs, technology and alternatives.

*Different allocative mechanisms have different information requirements.*

In different economic systems, the decisions may be made by different agents. In a traditional economy, individuals only need to know the previous solutions that were used. In a planned or command economic system, some type of planning authority would necessarily have to have information about an objective, all inputs, all technology and all alternatives that are feasible. An important question is; Whose objective? The planners? The members of society?

In a market-oriented system based on exchange between individuals, the information requirement is altered. Individuals only need to know about their own preferences and feasible alternatives.

There is no reason to believe that a traditional economy, a planned economy and a market economy would make the same allocation of resources and goods. These economies may have different objectives.

In the 1920's and 30's there was a debate (The Socialist Calculation Debate) about the ability of socialist systems to acquire necessary information. One side of the debate led by the Austrians (Ludwig von Mises (1881-1973) and Friedrich Hayek (1899-1992)) argued that it would be impossible for a centrally planned economy, run by rules, to have the necessary information to replicate the results of a market economy. Oscar Lange (1904-1965) and Abba P. Lerner (1903-1982) argued that under some circumstances the information could be calculated. This is a simplistic description of the Socialist Calculation Debate but emphasizes the importance of information

*Socialist Calculation Debate of the 1920-40 era*

to the functioning of an economic system.

*Markets can function as a communication system*

In the Socialist Calculation Debate, Austrians argued that command economies could not be successful because there was insufficient information to guide decisions in the economic process. They believed that each individual had information about their preferences and what they were capable and willing to do. Markets were seen as the social institution that could provide information about relative values through the voluntary, exchange interactions of individuals. The market system was the process that provided the information for the agents to make decisions. The Austrians argued that the command system had no process by which information would be revealed. Lange accepted this criticism and suggested, "market socialism" as an alternative.

An alternative perspective is; If the objectives of the market economy and planned economy were not the same it is not clear why the socialist system would want to replicate the outcomes of a market system.

## INCENTIVES

*Incentives are needed to insure agents act on information.*

Incentives are the forces that encourage or induce agents to behave in particular ways. If information is to be of use, it is important that individuals shape their behavior based on that information. Many forces shape behavior. Preferences are shaped by perceptions of duty, authority and self-interest. Individuals have incentives to behave in ways that will lead to the satisfaction of their preferences. The failure to complete one's duty may cause feelings of guilt. This guilt is and incentive to perform a duty.

Since neoclassical economics is based on a consequentialist ethic that is expressed through markets, the incentive provided by the satisfaction of self-interest is perceived as dominant. Every action has a cost and a benefit (the cost or benefit may be zero). The perception of a self-interested individual is that the cost of an action or choice is greater than the benefit; it is not an appropriate alternative. If the benefits associate with an action exceed the cost; it is an alternative that is consistent with self-interest.

Other incentives may be equally as important. Adam Smith believed that behavior to achieve self-interest would be constrained by feelings of sympathy expressed as a system of morality.

## RATIONALITY AND INFORMATION

*Rational behavior requires an objective, knowledge of alternatives and a method to evaluate each alternative with respect to the objective.*

The allocation of scarce resources requires both information and incentives for the agents. Information about the objectives and feasible alternatives is necessary if "rational choices" are to be made. A rational choice requires that the alternative that "best" satisfies the objective be selected. This requires criteria to evaluate each alternative with respect to the objective. Based on the objective, set of alternatives and the method of evaluation, the optimal or best alternative can be selected. There are three fundamental steps to the process of making "rational" economic choices:

- Identify the objective of the agent.
- Identify all feasible alternatives that are related to the objective.
- Develop the criteria to evaluate each feasible alternative with respect to the objective.

(In Part I the provisioning problem will be addressed in more detail. The orthodox analysis of economics as an allocation problem will be presented in Part II.)

# Alternative Microeconomics

## Two Chapter

### Allocation and Provisioning

## I Introduction to the Economic Problem

*Finite resources and a given technology combined with "unlimited" wants results in scarcity*

*The allocative question is how to allocate scarce resources to maximize the satisfaction of wants*

*Economics as a study of provisioning deals with the nature of wants, the social institutions and technology as well as the allocation problem.*

*Individuals and societies try to solve the scarcity problem through social interaction and knowledge.*

Society is confronted with a finite set of resources and a given state of technology at any given point in time. As a result, there is a finite amount of goods and services that can be produced in that time frame. Given human desires and need for food, clothing and shelter, it is not always possible to produce everything that everyone would like to have. When individuals want more than can be produced, the most obvious question is: "How can relatively scarce resources be allocated to satisfy as many unlimited wants as possible?" This question is the basis for orthodox microeconomics.

Provisioning is process that by which individuals in societies provide themselves with the means for survival and betterment. From this perspective, many other questions may be addressed. What is the nature of wants? What forces shape individual wants? Are these wants consistent with community values? What are the alternative social mechanisms that individuals may use to allocate resources? To what extent do moral values guide the allocative process? What social institutions are necessary for different allocative mechanisms to function? Which allocative mechanisms are most appropriate for specific allocation tasks? What forces determine what we define as resources or inputs? What is the nature of resources or inputs? What is the nature of technology and what is its role in the economic system? Do changes in technology influence social institutions? To what extent do social institutions influence technology? The answers to these and other questions provide the background to help frame the question and answers about optimal allocation.

The questions about allocation and provisioning are interrelated. It is possible to address the allocation problem without making the provisioning problem explicit. A particular set of social institutions, property rights, income distribution and other circumstances may be taken as given and not made explicit. It is not possible to deal with the questions about provisioning without dealing with the allocation problem.

Every society faces the problems of allocation and provisioning. There are two broad approaches to these economic problems: social interaction and the advancement of knowledge.

Individuals acting together can often accomplish more than when they act alone. This is one of the reasons that humans are social. They work together in groups, tribes, firms or other organizational forms for protection and producing the means of sustenance.

Knowledge about how the natural and built environments can be manipulated

to satisfy wants is another way to minimize the scarcity problem. Propositional knowledge is knowledge or beliefs about natural phenomena: knowledge about the basic nature of things. Propositional knowledge provides the basis for instructional or prescriptive knowledge. (Mokyr, pp 4-6) Technology or prescriptive knowledge is a set of instructions to about how to use resources to attain objectives. Advances in knowledge improve the techniques by which individuals seek to achieve objectives. The process by which societies acquire knowledge and adapt it to their use is an important part of the both the allocation and provisioning processes.

## II The Allocation Problem

*The allocation problem can be addressed by:*  
 1) Increasing the output  
 2) altering the mix of goods produced  
 3) altering wants and preferences.

There are three possible approaches to the narrow allocation problem. First, an increase in the output of goods and services is the most simplistic and most obvious answer. A second approach is to alter the mix (relative amounts) of goods and services produced, so that more highly valued goods are produced by reducing the output of lower valued goods. A third strategy would be to alter or reduce individuals' wants.

In modern, neoclassical, economic analysis (we will call this "orthodox" economics), the problem is usually structured so the wants are taken as given and the problem is to produce the goods that satisfy the greatest wants. The line of reasoning follows:

- The objective or goal of society is to maximize utility (welfare or wellbeing) of the members of society;

This can be expressed as a mathematical statement,  $U_S = f(U_A, U_B, \dots, U_N)$

Where  $U_S$  represents the total utility of society,  $U_A$  is the utility of individual A (Adam),  $U_B$  is the utility of individual B (Barbara) and  $U_N$  is the utility of the  $N^{\text{th}}$  individual. "The utility of society is a function ( $f$ ) of the utilities of the individuals."

- The utility of society is the sum of the individuals' utilities.

If the welfare of the community ( $U_S$ ) is the sum of the individuals' utility we can be more specific:

$U_S = U_A + U_B + \dots + U_N$  "the welfare or utility of society is the sum of the utility obtained by each individual." If the individuals' utility functions are interdependent (my welfare or utility is affected by your utility), the utilities cannot be summed.

- Each person's utility is a function of the quantity of goods and services consumed.

Where  $Q_{XA}$  is the amount of Xebecs (good X) and  $Q_{YA}$  is the amount of Yawls (good Y) received by individual A (Adam). ( $Q_{iA}$  is the  $i^{\text{th}}$  good received by Adam), then Adam's preferences (tastes or utility function) can be expressed:

$$U_A = f_A(Q_{XA}, Q_{YA}, \dots, Q_{iA})$$

Barbra's utility function could be expressed:  $U_B = f_B(Q_{XB}, Q_{YB}, \dots, Q_{iB})$

The utility of the  $N^{\text{th}}$  individual would be  $U_N = f_n(Q_{XN}, Q_{YN}, \dots, Q_{iN})$

And the output of good X would be  $Q_X = Q_{XA} + Q_{XB} + \dots + Q_{iN}$

- Since the utility or welfare of the community is a function of the welfare of the individuals and the utility of the individuals is a function of the goods they consume, the utility of the community is a function of the quantity of goods and services available: more is preferred to



less. The more goods and services available, the greater the welfare of society:  $U_S = f(Q_X + Q_Y + \dots + Q_i)$

This chain of reasoning assumes that the utility of an individual is determined by the goods consumed. Aesthetics, personal relationships, health, security and other variables are not explicitly included in the orthodox model. A study of provisioning would include non-market values. The orthodox line of reasoning also leads to the conclusion that economic growth is a major goal for macroeconomic policies. A few years ago, a popular T-shirt slogan expressed this idea; "He who dies with the most toys WINS"

A less obvious set of conclusions is that the welfare of society as measured by  $U_S$  can be altered by changing the relative amounts of the goods produced or by altering the relative amounts of each good that each person receives.

**Ceteris Paribus**  
is used to indicate that there are implicit variables that are to be held constant.

The economist uses the concept of *ceteris paribus* to deal with the problem. *Ceteris paribus* is a Latin expression which notifies the reader that there are other things to consider but they will not be changed and remain implicit so that we can focus on the relationship described.

**Opportunity cost**  
is the value of the best alternative that is given up or sacrificed when a choice is made

The second approach is to increase the output of goods that individuals value most and reduce the output of goods that are less desirable. Scarcity requires that the individual or agent make choices about which goods to produce. If resources are fully employed and the best technology is used, increased production of one good (Xebecs,  $Q_X$ ) requires a reduction in the production of some other good (Yawls,  $Q_Y$ ). The sacrifice of the reduced production of Yawls is the opportunity cost of the additional amount of Xebecs. Opportunity cost is one of the major tools used to make decisions about what and how much to produce.

The third approach is to alter the nature and level of wants. One approach to the good life is to simplify one's desires and possessions. By eliminating the extraneous or superfluous goods in their lives, an individual can appreciate more fully the important things or aesthetics. Religious groups often take this approach. St. Francis of Assisi and Buddhist monks shared a desire for a more meaningful life by reducing wants or desires for material possessions. In the secular, industrialized world, this approach is not often mentioned.

## ALLOCATIVE MECHANISMS

**Property rights** define the rights of an individual or group to specify the control or use of a good or resource.

The allocative process requires that rights to control and use resources and goods be defined and enforced. The concept of property rights is multifaceted and will be described in more detail later in the text. For current purposes, property rights will be described as the right to control the use of a good or resource. If these property rights are held by individuals, they are called private property rights. Organizations, governments, corporations and other institutions may hold property rights. In some cases, such as air, property rights may be held in common; these are called common property rights. For an economic system to function, it is necessary that property rights be defined and enforced whether they are private, public or common property rights.

Society must devise a process by which the control and use of

resources and goods can be assigned to an agent who controls its use. An agent is an individual who has the authority to evaluate, select, and act on an alternative to achieve an end.

*Allocative mechanisms are the methods by which societies to shift the property rights to different uses.*

The process of assigning and enforcing property rights to goods and resources is a social process. If the allocative problem is to allocate resources to maximize the utility of the community then the property rights should be assigned to the agents who get the most utility from them. It is necessary for society to devise allocative mechanisms to facilitate the assignment of property rights to different agents and uses. There are a number of allocative mechanisms, these include; exchange, reciprocity, eminent domain, philanthropy, inheritance and theft.

### **EXCHANGE**

**E**xchange involves a *quid pro quo*, i.e. an exchange of private property rights between individual agents. The terms of the exchange are clearly specified: "I will give you this if you will give me that." The goods to be exchanged are clearly specified, as are the terms of the exchange.

*Exchange is a quid pro quo; the terms of the transfer of property rights is clearly specified. A specific property right is traded or exchanged for another specific property right, the terms of trade are known to both parties.*

The participants in the exchange do not need to know each other; they only need to know the terms of the exchange. The information requirements are quite low. In many cases, the exchange may be made easier by social institutions. Laws that protect buyers and sellers may facilitate the exchange. Trust may be an important element as well.

### **RECIPROCITY**

**R**eciprocity is a system of obligatory gift giving: I will do you a favor or give you a gift, but you are then obligated to do an unspecified favor or give me a gift at some (possibly unspecified) point in the future.

*Reciprocity is a system of obligatory gifts. A gift from one individual to another establishes an obligation for the recipient to do something for the other individual.*

Reciprocity requires a sense of community. Kinship ties or membership in the community is needed so that the obligation of returning a favor is enforced by social forces. If a friend helped you move apartments one weekend and then helped you fix your car the next weekend, your refusal to help that person at some point in the future would have social repercussions. The friends you have in common might come to regard you as a freeloader. Social pressure may induce you to return the favor.

### **EMINENT DOMAIN**

**E**minent domain is a redistribution of private property rights through the authority of some organization. The individual is required to give up their claims to private property by an authority. Usually the process of eminent domain is legitimized by government, religion or some other authority.

*Eminent domain is an assignment of property rights by an authority..*

### **PHILANTHROPY**

**T**he act of giving a gift with nothing expected in return is called philanthropy. This is an important method of distribution in blood drives and the donation of organs for transplantation.

*Philanthropy is a transfer of property rights with nothing expected in return.*

*Inheritance is the transfer of property rights from a deceased person to an agent. Theft is the illegitimate transfer of property rights.*

## **INHERITANCE AND THEFT**

**I**nheritance is the process transferring private property rights from a person who has died to an agent. The form that the inheritance laws take may greatly influence the accumulation of wealth in a society. In countries where primogeniture (the eldest son inherits the estate) is practiced, the size of land holdings may be maintained. Where the property is divided among all surviving children, the land holdings may be divided up into smaller and smaller units.

**T**heft is the process of transferring property rights by illegitimate force. Few societies can function if theft is widely used.

These allocative mechanisms appear in almost all societies to a greater or lesser degree. The relative emphasis that a society places on each of these mechanisms is an important characteristic of that society's economic system. The allocative mechanism used for specific goods and resources may alter their nature.

## **III Provisioning**

**E**conomics as a provisioning problem includes the allocation problem but includes and analysis of the social infrastructure, knowledge and ideological framework in which economic behavior occurs. Individuals pursue their objectives in a social context. The values, beliefs and ideology that influence economic choices are framed by society. What individuals believe and value is an input into their preferences and the process by which they make choices.

Knowledge is seldom acquired as an individual effort in isolation. There is a common body of knowledge that each person accepts (or rejects) and builds upon. The origins and nature of knowledge greatly influences the economic functions of a society. Science and technology determine the known feasible alternatives that compose the choice set.

The social values often promote or restrain the uses of knowledge. Religious and moral beliefs may alter the way in which knowledge is used. Max Weber (*The Protestant Ethic and the Spirit of Capitalism*, 1904-05) and Robert Tawney (*Religion and the Rise of Capitalism*, 1926) both hypothesize that the rise of the capitalist system was predicated on protestant beliefs. These works have been controversial and the role of religion in the operation of economies is not accepted by everyone.

Each individual is influenced by the infrastructure of society. Roads, books, tools, telephones, the Internet, the legal system, property rights, double entry bookkeeping, dams, energy plants and distribution systems are examples elements of the infrastructure which facilitates individual effort. What may appear as a major individual accomplishment is often one step in a social process. Wrights' powered flight depended on the existence of internal combustion engines, bicycles, fabric, gliders, metallurgy, and a host of other items. The flight of the Wright Brothers contributed to landing on the moon and the thousands of commercial flights each day.

## **THE ROBINSON CRUSOE EXAMPLE**

**M**any early economists used Robinson Crusoe as an example of the allocation problem. The story of Robinson Crusoe (1719) was written by an

*The origin and nature of knowledge is related to the economic functions in a society.*

*Social values and beliefs may influence the uses of knowledge in economic activities.*

*The infrastructure provides a foundation for individual economic activities.*

*Robison Crusoe was the sailor who was marooned on a desert island. He had to make choices about what goods should be salvaged from the shipwreck and was then confronted with choices about how to live.*

*Robinson Crusoe began his stay on the island with the tools and knowledge of the English society..*

*Opportunity cost is one of the criteria that guides Crusoe's economic behavior.*

*Social interaction is constrained and/or coordinated by both competition and cooperation*

Englishman, Daniel Defoe (1659-1731). It is the story of a young man who was born in York, England. He was educated to enter the law profession but yearned to go to sea. Against the advice of his family, he went to sea, was successful in trading but was captured by a Turkish ship and made a slave. Crusoe escaped in a stolen boat, was rescued by a Portuguese ship and ultimately became a plantation owner. Seeking another adventure, he was shipwrecked on a desert island in 1659. Defoe's story is that of survival and isolation. Robinson Crusoe was confronted with the problems of allocation and provisioning.

As an individual in isolation (Defoe's Robinson Crusoe before Friday) would have to make choices since time and resources are limited. His first set of choices is what to salvage from the wrecked ship. Guns, powder, carpenter's tools, paper and ink are valued more highly than money. It is these things, not money that will allow Crusoe to provide for himself. His choice about which things to salvage (he cannot get all of the resources of the ship to shore on makeshift rafts) is partly an allocation problem and partly provisioning. The natives of the neighboring islands have different beliefs, values and infrastructure (tools, knowledge, etc). They have a different social structure and their approach to provisioning and the allocation problem is different. The allocation choices they make are not the same as those made by Crusoe. His English education, beliefs, training as a sailor and the tools he saved are part of his provisioning process; he salvaged a good deal of the infrastructure of the British society.

Once ashore and the ship washed out to sea, it became necessary to choose whether time was to be spent catching fish, gathering coconuts, reading or building shelter. These choices are shaped by the tools and knowledge he brought to the island. If the choice were to catch fish, he would have to choose between making a net, a fishing pole or trying to catch fish by hand. The choice to spend an hour fishing implies that that hour cannot be used to gather coconuts. The sacrifice of coconuts is called "opportunity cost."

Even Robison Crusoe's world of isolation did not last long. When Friday came to the island, it became necessary to decide who did what and who got what. It is necessary to coordinate the preferences and activities of Crusoe and Friday. Since the story of Robinson Crusoe was written by an Englishman, Daniel Defoe (1659-1731), Crusoe's values are dominant and he has a greater influence on the decisions than Friday. In 1719, the perspective of an English writer was that aboriginals of various lands were subordinate. Still, it is necessary to coordinate their activities.

## **SOCIAL INTERACTION**

Individuals can often accomplish more by interacting than they can as individuals. In a society, this team or group behavior of individuals must be coordinated through social interaction. This social interaction may take many forms ranging from cooperation to competition. In the process of resolving the allocation problem through social interaction, a set of institutions, organizations, beliefs, principles, perspectives and commonly held values are created. Society, guided by these values, perceptions and beliefs and constrained by institutions, technology and resource endowment, must solve the problem of provisioning. The specific uses of goods and resources must be determined. These choices involve which resources to use, which goods to produce, who will bear the costs and who

will benefit.

The basic problem is the coordination of the choices and behavior of individuals. The protection of the autonomy of the individual while coordinating social behavior has been an important goal of most great writers on social topics.

## SPECIALIZATION

*Specialization and division of labour can increase production*

Specialization and the division of labour are two important forms of social interaction that allow two or more individuals to do what an isolated individual cannot do. Both are means to increase the production of goods and services.

*When one person, firm, or country focuses on the production of one good, it has "specialized"*

Specialization is the case where an individual (firm, organization or country) focuses on the production of a specific good (or group of goods). It can increase the amount of goods that can be produced. It also requires some form of social institution to coordinate the process. If one individual produces food and the other clothing, the two individuals must interact if both are to have food and clothing. This interaction may be facilitated through an institution such as the market or a transfer based on kinship, marriage, religion or government authority. Plato suggests that the city-state is a social construct that is used to facilitate specialization and to improve the welfare of the members of that state.

*Institutions are habitual patterns of behavior*

In *The Republic*, Plato [427-347 B.C.] suggests specialization as an explanation of the origins of the city-state. Plato describes a conversation between Socrates and a group of students. They are pondering the nature of justice. They conclude that justice is each person doing that which they are best suited to do. The person best suited to be a baker should be a baker; the person best suited to be a shepherd should be a shepherd. Once individuals specialize, the city-state arises to facilitate the transfer of goods and the necessary interactions among the individuals. [*The Republic*, Book II]

*Specialization and justice in Plato's [Republic](#)*

Plato tries to identify the characteristics of the ideal society. One of the focal points is justice that is achieved by "each person doing what they are best suited to do." Social interaction is required because each person depends on the other members of the community. He devises a meritocracy that is lead by philosopher kings. To prevent nepotism and greed from influencing these philosopher kings, Plato does not allow the philosopher kings to hold private property rights, all of their property is held in common.

*Specialization requires social interaction*

David Ricardo (1772-1823), a classical economist formalized the concept of comparative advantage as an argument for specialization and free trade (and against the Corn Laws). He used an example of England and Portugal producing wine and cloth. With equal amounts of labour Portugal can produce more wine and cloth than can be produced in England. This may be due to land (soil types, climate), tools (capital) or other factors. However, Portugal can produce relatively more wine than cloth than England. When England specializes in the production of cloth and Portugal the production of wine, the same amounts of wine and cloth can be produced by the two countries with less labour. The labour that is saved can be used to produce more wine, cloth or other goods. Depending on how the additional goods are distributed among the citizens of England and Portugal, some individuals will be "better off" (have more goods) Ricardo did not address the issue of how the gains from comparative advantage would be



distributed. However, if the countries specialize, social interaction is necessary. Free trade was the way in which Ricardo anticipated the benefits from specialization would be distributed.

## DIVISION OF LABOUR

*Division of labour is the process of breaking the production process into individual steps.*

The division of labour is another form of social interaction that allows individuals to do what the isolated person cannot. In the division of labour, the production of a good is broken down into individual steps. One person then performs one step in the process. No single person produces the good alone. The actions of each individual in the production process must be coordinated. In modern industrial societies, production often takes place in a business firm. "Management" is the process of coordinating the activities of the individuals within the production process. A specific application of microeconomics to the process of production within a firm is called "managerial economics."

*Division of labour and economic growth in Smith*

Adam Smith [1723-1790] in the *Wealth of Nations* proposes that the division of labour is one of the major elements that contribute to economic growth (the increased ability to produce goods and services) [*The Wealth of Nations*, page 1]. The division of labour is the process of dividing a task (work) into its component parts. Smith argues that the division of labour increases production through improved dexterity, saving time in moving from one task to another and improvements in tools.

Smith cautions about the effects of unrestrained use of the division of labour,

*Smith's concern about ill effects of specialization*

*"In the progress of the division of labour, the employment of the far greater part of those who live by labour, that is, of the great body of the people, comes to be confined to a few very simple operations, frequently to one or two. But the understandings of the greater part of men are necessarily formed by their ordinary employments. The man whose whole life is spent in performing a few simple operations, of which the effects too are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become....But in every improved and civilized society this is the state into which the labouring poor, that is the great body of the people must necessarily fall, unless government takes some pains to prevent it. [Smith, *Wealth of Nations*, p 734-735]*

Smith, a professor of moral philosophy, constructed a system to explain a set of forces that would guide social and economic behavior. In *The Theory of Moral Sentiments* [1759] he showed the need for justice and a system of morality. In *An Inquiry into the Nature and Causes of the Wealth of Nations* [1776] he describes the role of self-interest and markets. In a third book that was destroyed at his request at the time of his death, he describes the need for a system of jurisprudence. Two sets of students' notes have been used to show these basic arguments in *Lectures on Jurisprudence* [1762-63 and 1766 published in 1978]. Smith describes a social system that requires morality, markets and jurisprudence to guide and constrain individual

action in a social context.

*Coordination of human activities as an objective in economics and social science*

Once humans use the division of labour and specialization, it is necessary for them to coordinate their efforts. They must interact on a variety of levels. Society is a complex set of interactions among groups and individuals. These interactions give rise to social institutions. The study of these interactions and institutions is "social science." Human interaction can be studied from a variety of perspectives. Sociology, political science, law, history, psychology, religion, anthropology and economics are examples of social sciences. These are often studied as separate disciplines. However, we should remain aware they are all interrelated perceptions of human behavior. While economics specializes in the study of the processes that coordinate human behavior as it allocates scarce resources to satisfy unlimited wants, its relationship to other social sciences should not be overlooked.

## IV Economic Activities

**P**roduction, distribution and consumption are clearly economic activities. Each of these activities is interrelated with other aspects of society as well as the natural and built environments.

It may be helpful to think of an economic system as a process that begins with a set of inputs (or resources) that are used for production that must be distributed for ultimate consumption.

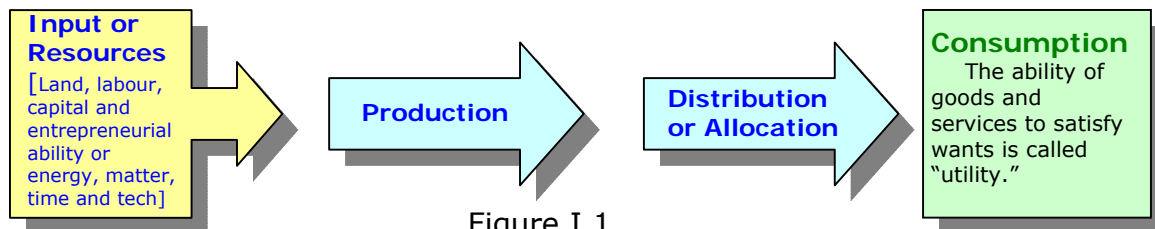


Figure I.1

In Figure I.1, the economy is shown as a process of altering a set of inputs to satisfy individual wants. In this example, the steps in the economic process are production, distribution and consumption.

### INPUTS OR RESOURCES

The economic process begins with a set of inputs. These inputs are often referred to as resources or "factors of production." Typically, these resources are classified as labour, capital, land, and entrepreneurial ability. This taxonomy reflects the evolution of the social structure in the industrial economies. During the medieval era (500-1500 by many accounts but there is no consensus as to exact dates), there were three major social classes; serfs, nobility and the clergy. The serfs provided labour. The nobility and clergy were the landholders. Labour and land were the two major inputs. After the Crusades (1095-1270), trade became more widespread and a merchant class developed. It took time to go to the East to acquire goods (spices, silk and the like), bring them back and exchange them for money. The merchants were the beginning of the commercial class. With the development of manufacturing, the commercial class expanded and was characterized by their ownership of the means of production, capital. Textiles, pottery, printing books and a host of industries moved from the home to the factory. This social class of the owners and manufacturers became the

capitalists.

Land, labour and capital reflected the social classes. The fourth factor of production, entrepreneurial ability was added much later. The return to land was called rent. Labour earned wages and capital (at least until entrepreneurial ability was added as the fourth factor of production) earned profit and interest. Entrepreneurial ability was added to explain the existence of profits.

*Land is a "gift of nature." The return to land is rent*

### **LAND**

Land is a resource or input that is a "gift of nature" It exists independently of human activities. Soil, a forest, a deposit of oil, coal, rain, a river, the climate are a few examples of land. In economics the payment for land is often called rent. There are many categories of land.

Some resources, like solar or wind, are referred to as "flow resources." If the resource is used for one purpose, there is no significant impact on the availability of the resource for other uses.

*Land resources can be flow, renewable or exhaustible.*

Other land resources are called "renewable." A forest, fishery, herd of buffalo, whales, water quality and the like are renewable resources. Trees may be harvested from a forest at a maximum rate equal to the growth rate of new trees. This is called the maximum sustainable yield. Fish, whales and buffalo (and other wildlife) can be harvested and if a large enough population is left it will "renew" or replenish.

Other resources are called exhaustible resources. There is a finite amount available and once used it is gone, it cannot be replaced. Coal and oil are examples of these resources. In practice, society does not know about all deposits of those resources. As one deposit of coal is mined out, new deposits may be discovered.

### **LABOUR**

*Labour his human effort to produce goods and services.*

Labour is any human effort to produce goods and services. The payment for labour is usually called wages (payments might be commissions, salary, bonus or whatever). Labour can be physical or mental. A person digging a ditch, managing a firm, or performing accounting functions is providing labour.

### **CAPITAL**

*Capital is any good that is made by humans to be used for the further production of goods and services.*

Capital is a means of production that is made by human labour and used for the further production of goods and services. Drill presses, dams, roads, irrigation canals and buildings are examples of things that may be considered as capital if they are used to produce other goods. The payment for capital is usually measured as interest.

### **ENTREPRENURIAL ABILITY**

*Entrepreneurial ability is the creative and innovative process in the economy.*

The term entrepreneur was first used in economics by Richard Cantillon (1680-1734). The term was later popularized by Jean-Baptiste Say (1767-1832). Joseph Schumpeter (1883-1950) further developed the concept of the entrepreneur. For Schumpeter, the term was applied to those persons who were innovators and creators of new goods and processes. The act of creating something new is fundamental to the concept of the entrepreneur. The person who provides the capital for a new venture is not an

entrepreneur. The person who manages a project after its creation is not an entrepreneur. The process of creating new goods or processes is usually accompanied by risk. Innovation and risk are important elements of the entrepreneurial function. The return to the entrepreneur is usually thought of as profit.

The taxonomy of resources or factors of production is not always clear. A stand of old growth timber should be classified as land. Yet, a reforested area may be more like capital. An individual may play the role of a manager (labour) and an entrepreneur. An automobile may be capital for a traveling salesperson or a consumer good for someone else.

There are other ways to categorize the factors of production. Time, knowledge, energy and matter is another taxonomy. A different system of categorizing inputs may result in different questions and/or different perspective of the economic problem. When the factors of production are identified with social classes, the questions are framed with regard to the power and influence of those classes. If resources are associated with physical concepts like energy, matter, time and technology, the questions (and answers) are less likely to be influenced by political power and stakeholders.

## PRODUCTION

*Production is the process of altering inputs to increase their ability to satisfy human wants*

**P**roduction is the process of altering inputs to increase their ability to satisfy human wants. Production can occur if inputs are physically altered to increase their ability to satisfy wants (utility). Steel that has been made into a pan may provides more utility that a sheet of steel or an iron ingot. The iron has been physically altered to increase its ability to satisfy wants. A change in the location of a good can increase its ability to satisfy wants. Lobster is moved from Maine to Arizona because it will satisfy more wants in Arizona than in Maine. Changes in time or ownership are other types of productive activities.

*Production can result from;*  
1) a change in physical characteristics  
2) a change in location  
3) a change in time  
4) a change in ownership

Physical production is the most obvious and easiest to measure. Units of automobiles, cans of peaches, pizzas and bottles of wine can be counted. A variation in the quality of these goods is often ignored. (Relative prices paid for goods **may** be an indicator of quality.) Airlines measure their production by passenger-miles. Trucking companies use ton-miles to measure output. Services are often more difficult to measure. A police department may produce safety or security. How is that measured? A teacher produces education. How is that measured? Is the output of a fire department measured as the number of fires they put out or the number of fires they prevented?

## DISTRIBUTION

**D**istribution usually describes the process of allocating the property rights to goods and services that have been produced. Societies have used market exchange, reciprocity, eminent domain, inheritance, theft and philanthropy to distribute these property rights. The primary means of distribution or allocative mechanisms that are used in most societies are exchange, reciprocity and eminent domain. The techniques used to

## CONSUMPTION

**T**he end purpose of economic activity is to provide for the survival and betterment of the conditions for individuals in a society. One aspect of this

is the production of goods and services that can be consumed by individuals to satisfy needs and wants. Modern, neoclassical economists generally do not like to use the word "needs." The use of the word "wants" is an attempt to take subjective judgment out of the analysis.

*Consumption is influenced by tastes, income, wealth, alternatives, prices, etc.*

Consumption patterns are influenced by preferences (tastes), income, wealth, and the relative prices of goods. Preferences cannot be measured directly. The choices that individuals make give some indication as to preferences. The consumption choices are often correlated with variables that can be measured. Age, gender, ethnicity, religion and other characteristics may be related to preferences and consumption choices. In orthodox microeconomics, demand analysis is one approach to summarizing the consumption choices.

*Consumption includes more than just goods and services that are exchanged in a market.*

Consumptive activities may include more than goods and services that are exchanged in a market. Individuals value security, aesthetics, creativity, leisure, a sense of belonging, and other non-market phenomena. These consumption activities should be considered in the study of the provisioning problem. The role of these things frequently arises in the allocation process because individuals may trade market goods for non-market values. An artist may give up some income to engage in creative activities. Income or goods that can be purchased with that income may be given up for leisure or job security. Societies may tradeoff electricity or irrigation to have a free flowing river.

### INTERRELATION OF ECONOMIC ACTIVITIES

*Production, distribution and consumption are interrelated processes*

Production, distribution and consumption are interrelated. What to produce is influenced by what individuals want to consume. What people want to consume is influenced by the distribution process and what can potentially be produced. This coordination may come in the form of cooperative activities, such as the creation of a business firm. The firm usually organizes production internally as a cooperative process but must compete externally. Alternatively, the coordination of activities may be accomplished by competition or some combination of cooperation and competition.

## V Technology

**T**echnology is knowledge about how resources, individuals and social organization can be used to accomplish objectives. Technology is what Joel Mokyr calls instructional or prescriptive knowledge. This prescriptive knowledge is based on propositional knowledge about the nature of things. (Mokyr, pp 4-6)

The study of the nature and limits of knowing (or knowledge) is called epistemology. Technology is one small piece of knowledge. Here the role of technology in the economic process will be considered. Epistemology and the dual problems of (1) What do I know? and (2) How do I know? will be presented in the section on Methodology.

*Technology is the knowledge about how resources can be used to satisfy human wants.*

Technology is more than a set of skills to do things. It is a perspective about the relationships between humans and their world. Technology is the sum total of the ways in which human societies interact with natural and built environments. Humans seek to understand these interactions and develop technology by combining and reorganizing existing technologies.

In economics, technology is the knowledge about the manipulation of resources, people and social institutions to produce goods and services that



satisfy human wants. Prescriptive knowledge about how we do things, “technology,” is not limited to machines. The discovery of a calendar or the realization that crops can be planted on a three field rotation may be as important as the invention of the padded horse collar, the steam engine or the PC. Prescriptive knowledge about the use of organizational structure to achieve an objective is, in a sense, a form of technology.

*Technology and society are interrelated*

The values and structure of society are connected to the state of technology. Society is shaped by technology and at the same time is an important force in the determination of the course of technological change. This relationship between technology, society and the individual can be driven by curiosity and/or material gain.

*Technological change is a pervasive process*

Technological change is pervasive. During some periods of history, technology changes at a slow pace. At other times, the rate of change is more rapid and more dramatic. During the medieval period, technological change was slow. With the development of mechanical clocks, the plague, moveable type, gunpowder, new techniques in art and other innovations, the “Renaissance” (usually thought of as the 14<sup>th</sup>-17<sup>th</sup> centuries) was a period of dramatic change. During the 17<sup>th</sup> and 18<sup>th</sup> centuries, the “age of Enlightenment” was fueled by technological change. The “Industrial Revolution” (which is often dated as about 1750) is another term used to identify a period of rapid technological change. Each of these periods involves changes in ideas, values, knowledge and social institutions. Each altered economic and social processes.

*Technology may be driven by profits*

*Technology may be a self-generating process*

There are opposing views as to the process of technological change. One view is the Thomas A. Edison perspective. In this case, technological development is driven by profits. If a technology is profitable, it will be invented. The other view is that technology is a self-generating process. New technology is the result of old technology(ies) being recombined in new ways and used for new purposes. In the second view, profits cannot create the development of technology but determines its uses.

*Technology influences what we perceive as resources.*

What an individual perceives as a resource is influenced by the nature of technology. In the 18<sup>th</sup> century, obsidian was an important resource among the inhabitants of the western United States; uranium was not. In the 21<sup>st</sup> century, obsidian is not normally regarded as a very important resource while uranium has become a resource.

*Factor endowment can alter the modes of technology that are used.*

Factor endowment may influence the direction that technology develops. In a society with an abundance of arable land and a shortage of labour may produce (and consume) different goods and seek different technologies to produce them.

*Technological change can be influenced by profits, curiosity, factor endowment, and existing technology(ies) as well as social institutions.*

In the Edison view, the light bulb was invented because there was a demand for it and it could be developed and produced for a profit. In the second view, it is not possible to invent high-pressure steam engines, even though they may be profitable, until the technology of metallurgy develops metals to contain the higher pressure. Either view supports the argument that technology builds upon itself. The creation of an internal combustion engine depended on its connections to cannons, oil, Maybach’s spray carburetor, levers and gears. Each of these in turn depended on other technologies. When Daimler and Maybach built the automobile, it was the result of a series of connections between technologies that had been developed by many people over a long period. (see Burke, *Connections*, pp 175-183)

*Technological  
change involves  
1) invention  
2) innovation  
3) dissemination*

It is useful to think about technological change as a process. First, a piece of knowledge emerges or an "invention" occurs. Second, someone finds an application for the new knowledge (innovation) and uses it. Third is the process of dissemination, i.e. the use of the idea is spread throughout the social system. Each stage of technological change may produce or require significant changes in values and social institutions. Changes in social structure or the natural environment may encourage technological change.

Technology and the social system are interconnected. Technology has a strong influence on the structure of society and individual behavior. The Industrial Revolution may be thought of as a fundamental change in technology of production that altered society. The development of the mechanical clock was driven by the clergy's desire to satisfy the institution of prayers at specific times of the day.

## **VI Allocation, Provisioning and the Economic System**

Economics as a study of the allocation problem is straightforward. Given a set of resources, a state of technology, a group of individuals who have a set of preferences and a set of social (including economic) institutions, what is the optimal allocation of those resources. There are the five basic allocation questions;

- 1) What goods (and services) should be produced?
- 2) How many units of each good should be produced?
- 3) How should those goods be produced?
- 4) When should those goods be produced?
- 5) Who should get the goods produced?

The ways individuals and societies choose to answer to each of these questions is dependent on the philosophical and social context of the society. The answers as well as the approaches taken evolve and change over time. Economics as a study of provisioning is the study of how individuals and societies evolve over time. Knowledge, beliefs, values, principles, social institutions and economic behavior change.

Provisioning is concerned with the social structure and the alternative ways in which the allocation problem is approached. The concern of provisioning is with the economic actors (agents), the context in which their choices are made and the criteria used to make and evaluate those choices.

In the next chapter the nature of knowing, technology and the methods used by economists will be explored.

# **Alternative** **M**icroeconomics

## **Three** **Chapter**

### **Ways of Knowing**

## **I Introduction to ways of Knowing**

*Knowledge is imperfect*

*Introspection helps to understand the strengths and weaknesses of what we think we know.*

Knowledge about economic phenomena is imperfect. The problem of knowing is not unique to economics. An understanding of the methods by which knowledge is accumulated aids in the identification of potential biases and weaknesses of any discipline or field of study. Academic disciplines, like individuals, can benefit from introspection. By examining our values, objectives, and methods of achieving those goals, we better understand ourselves, consider other perspectives and hopefully improve the discipline.

The study of methodology and epistemology provides a process by which this introspection of economics as an academic discipline can proceed. Any understanding of the methods used in economics requires some introduction to a few important contributions to the literature on the process of knowing. It is a fundamental part of cultural literacy in a world dominated by "science" and the "scientific method." A brief summary of some of the basic concepts and major contributors is presented here.

There is a long history of various approaches to the study of the economy. These approaches are not self contained, isolated bits of knowledge; they are extensions of and reactions to earlier approaches in economics and other fields. The process of "knowing" is difficult. Two questions that should be paramount are:

**What do I know?**

**How do I know what I think I know?**

*Epistemology is a study of the nature and limits of knowing.*

Epistemology is the study of the origin, nature, methods and limits of knowledge. There are several approaches to the study of processes that contribute to knowing; the history of science and the sociology of knowledge are two closely related fields. Methodology is one aspect of epistemology. Methodology is generally seen as the system of values, beliefs, principles and rules that guide analysis within a given discipline. The methodology(ies) that prevails within a discipline plays a major role in the nature of questions that are asked as well as the answers that are offered.

There is a large and growing body of literature on methodology in philosophy and the sciences (both natural and social). This trend has also influenced economics. Many economists have participated in the explorations into methodology and epistemology. One explanation for a renewed interest in methodology in economics is that the basic processes created to explain the development of market systems and mature industrial economies may need to be adjusted if there are significant structural changes in the economy. The study of the history of economic thought and methodology adds the questions

of

**“What do I believe?”**

**“Why do I believe what I believe?”**

One of the most difficult tasks in any discipline is to understand the nature of knowledge and the process by which it is acquired within the discipline. In this matter, economics is no different from any other body of knowledge. The methods used to study the phenomena influence the phenomena we select to study and the conclusions we draw.

## **FACTS, INFORMATION, KNOWLEDGE AND WISDOM**

*Facts or data are phenomena.*

*Information is the recognition of patterns in a set of facts or data.*

*Knowledge is a understanding of the causes and relationships in a set of facts.*

*Wisdom implies a system of ethics to make judgments about knowledge.*

In any period of history, there is a problem of determining the nature of what we think we know. Facts, information, knowledge and wisdom are not the same things. It is possible to engage in long arguments about the meaning of these words. (For our purposes, we will accept facts in the spirit of its Latin roots. *Factum* is something done; *factus* is done; *facere* is to do.) Sometimes data may be considered as facts. Facts alone do not tell us much. It is the organization of those facts into patterns that provides information. The recognition of patterns is aided by the way in which facts are ordered. Categorization (taxonomy) of facts is necessary to establish the relevant patterns and relationships. Information may also include the communication of those facts. Knowledge implies an understanding of the nature of relationships (system of causation) among the facts and information. Wisdom is more complicated and suggests a system of values and the judgment to evaluate and apply knowledge. Wisdom requires a system of ethics. The definitions of facts, information, knowledge and wisdom used here are superficial and subject to the reader's interpretation.

## **HYPOTHESES, THEORIES, LAWS AND MODELS**

*A hypothesis is a set of provisional propositions or premises used as an attempt to explain a class of phenomena*

A **hypothesis** is a proposition or set of propositions that is an attempt to explain an event or class of phenomena. It is usually thought of as provisional and a guide to further investigation. Hypotheses can be tested but never proven. Hypothesis testing requires the analyst to try to disprove the hypothesis. If it can be shown to be false, then it can be rejected. If it cannot be shown to be false then it is accepted as not yet proven false and may be retained until proven false. It is possible to reject a true hypothesis as false; this is a Type I error. It is also possible that a hypothesis is retained as probably true even when it is false; this is a Type II error. It is not possible to reduce these errors to zero.

*A theory is a coherent group of general propositions used as principles to explain class of phenomena.*

A **theory** is an explanation about a class of phenomena. Webster's Dictionary defines a theory as a "*as a coherent group of general propositions used as principles for explaining a class of phenomena.*" Usually a theory is considered as more reliable than a hypothesis. Theories are used to establish relevant patterns in data and to explain the relationships within those patterns. Newton's theory of gravity or Einstein's theory of relativity are examples of explanations of relationships between masses or the relationships between energy and matter. Theories are used to make sense out of data and information. "Without theory facts are meaningless." (Alfred Marshall)

*A law is a widely accepted theory*

The term **law** is used to represent a widely accepted premise or theory about a particular causal relationship. It is more widely accepted than a theory. In economics some writers refer to a "law of demand." (The belief that demand functions are inverse relationships between price and quantity that will be bought at each price, individuals buy more of a good at lower prices.)

*Models are an abstraction and act as a guide to the interpretation of data and facts.*

In economics, a **model** is a simplification of various relationships among economic variables and is used to explain or predict economic phenomena. It is a way to represent or call attention to a relevant order or pattern in a set of data. It is of necessity an abstraction and includes only the most important aspects of a relationship.

The nature of a model is dependent on the elements it is constructed of and the purposes it's anticipated use. If two groups are given the task of making a model airplane but one of the groups is given paper and the other clay, their models will not look alike. Both models will be abstractions from reality. The elements of reality that are modeled may be different. The shape of a wing to give lift is an important feature. The color of the insignia on the rudder may not be significant (unless you are trying to demonstrate how air craft are identified by different insignia). Which model is "best?" A paper model of an airplane may be useful to demonstrate the idea of flight to a third grade class. A clay model might be best in a wind tunnel to test aerodynamics of a 750 mph wind. In economics, models built using individuals may not be useful in describing the economic behavior of multinational corporations. Models using land, labour and capital may not ask and answer the same questions as models that are built with energy, matter, time and technology.

Models may take many forms; narrative, visual/graphic, tabular, mathematical, Cartesian graphs are some of the forms that may be used to present models.

## FOUNDATIONS OF "SCIENCE"

Jacob Bronowski contends there are three creative ideas central to science. These are the ideas of:

*Three basic ideas in science are*  
**Order**  
**Causes**  
**Chance**

- 1) **order**,
- 2) **causes** and
- 3) **chance**. (Bronowski 1978)

### ORDER

Bronowski states that, "*Science is not an impersonal construction.*" (Bronowski. p 13) This human construction of knowledge begins ordering of things and events or phenomena. Aristotle saw order in the "nature of things." Things fall to the earth because it is in their nature to do so. Bronowski mentions that one of the contributions made by the philosophers of the Middle Ages is that there is a hierarchy to the system of order. (Ibid. p 23)

*Three basic ideas in science are*  
**Order**  
**Causes**  
**Chance**

The notion of order is implicit in the classification of phenomena. Taxonomy (the art and/or science of identification, naming and categorization of phenomena) is fundamental to the process of science and the acquisition of knowledge. To classify events or things requires the recognition of the way in which things are alike or different. Taxonomy implies observation of the phenomena and some recognition of specific characteristics.

*The recognition of patterns may be the result of the way data is organized.*

Science looks for order or regularities among sets of facts. Order or regularities are patterns that are repeated in data or facts. Facts or data are usually collected by empirical methods. Observation is a typical method of collection. If we watch a "magician" or a group of witnesses to a crime testify, we understand that what we observe is not always what is. It is important to be very careful about what we see as facts. Different sets of "facts" can lead to very different questions and conclusions. Different "facts" or data can be collected about the same set of events. The taxonomy or the categorization of



The recognition of patterns may be the result of the way data is organized.

facts may lead to the recognition or belief that these facts are related in particular ways. A different taxonomy may result in the perception of different patterns. When inputs are categorized as land, labour, capital and entrepreneurial ability, the order recognized may be different to a set of inputs categorized as energy, matter, time and technology. Depending on the patterns (order) perceived within the data, different questions may be asked.

### CAUSES

Bronowski argues that both da Vinci and Newton were great inventors and mechanics. They both recognized patterns of order in the universe and were able to describe these patterns. The difference, according to Bronowski, is that while da Vinci was interested in variety and infinite adaptability, Newton was focused on unity and the singleness of nature. (Bronowski, p 24) Bronowski comments;

*"We could say that the Middle Ages saw nature as striving towards its own inner order: and that the Scientific Revolution overthrew this order and put in its place the mechanism of causes. ... On the one hand, all science, and indeed all thinking starts from and rests upon the notions of order; what marks the Middle Ages is that their order was always a hierarchy. And on the other hand what marks the scientific view is not that it turned to the mechanism of causes, but that it saw the world as a mechanism at all – a machine of events."*  
(Bronowski, p 25)

Understanding how one fact is related to another fact is the recognition of causes. The recognition of order, regularities or patterns in a set of fact, raises the question as to the nature of the patterns. There are at least five possibilities:

Causation is recognized through the perception of patterns and regularities.

1) event A may be caused by event B;  $A = f_a(B)$

2) event B may be caused by event A;  $B = f_b(A)$

3) events A and B may be caused by some (unobserved event C);

$$B = f_{bc}(C) \text{ and } A = f_{ac}(C)$$

4) event A may be caused by some interaction between events B and C;

$$A = f_h(B, C)$$

5) events A and B may be the result of coincidence

Statistical analysis is the typical method used to manipulate and analyze data.

Many technical tools can be used to describe and relate the facts in data sets. Averages, median, mode, range, domain, variance, standard deviation and other measures are descriptive statistics. Correlation, analysis of variance and regression can be used to relate different aspects (variables) in the data set. The strength of the relationships that are recognized in the data set can be tested using t-scores, F-ratios, Chi Square and other methods. At the end of the day, none of these methods can prove causation; they can only show correlation. The concept of causation depends on a theory (or hypothesis) about the relationship between the variables. Statistical methods allow a test of the hypothesis or theory. The hypothesis cannot be proven it can only be disproven and the hypothesis rejected. Statistics can be used as evidence to support or reject a perception of causation.

Statistical tools show correlation not causation..

### CHANCE

If the world of events were truly a machine subject to the law of causes, events

Probability aids in the recognition of causes.

would be deterministic. Bronowski argues that the recognition of the law of chance is central to the method of science. It adds "statistical law" to the concept of "causal law." (Bronowski, p 82) Causal law states that event B is caused by event A and therefore, event B will follow event A 100 time out of 100 occurrences of event A. Statistical law is based on the notion that event B will "probably" follow event A. The process is described as one where;

*"We look for a trend or systematic difference. But the line of this trend will itself be blurred by the unsteady hand of chance or random fluctuation. We cannot get rid of this random scrawl. But we can from it determine a measure of random variation, and use that to draw round the trend an area of uncertainty. If the area is small enough by standards which are agreed between us, then the trend is established, and we know the limits within which it is likely to lie. (Bronowski, p 92)*

The concept of probability provides the method by which observations of an extraordinarily complex world can be interpreted. It gives us information and knowledge that may not be "true" but is useful.

In a complex world, there may be many reasons for a lack of certainty in causes. There may be other hidden or unrecognized forces that influence the relationship between event A and event B. If event A results in event B 90% of the time we may believe that A "causes" B. If the occurrence of A results in event B 30% of the time, other "causes" of B may be more important. Probability is a key idea in the understanding of causes. Statistics provides the means to state that with 95% confidence (or some other percentage) event A is correlated with event B.

### USEFULNESS AND "TRUTH"

Knowledge that is not "true" may be useful.

Knowledge held at any time may be "true" or "not true." Knowledge that is true may or may not be useful. Knowledge may be useful whether it is "true" or not. Before the Copernican Revolution, a common belief was that the Earth was a stationary center of the universe. This was the Ptolemaic system attributed to Claudius Ptolemy [127-151 AD], a Greek mathematician and astronomer who lived in Egypt. In this system, the sun, stars, planets and moon circled the Earth in repeated patterns. Complex models were constructed to explain and predict the paths of the objects. These models worked with reasonable accuracy and were useful to plan for seasons, planting of crops, and to prepare for floods. The models were useful, but "wrong." New information obtained through observation and measurement showed there were simpler explanations for the paths of the celestial bodies. The Copernican or heliocentric view gained dominance. Galileo [1564-1642] verified the Copernican system with a new technology (the telescope). Johann Kepler [1571-1630] improved on Galileo's findings and calculated equations to explain the elliptical orbits of the planets about the sun. As we accept "new knowledge" about the cosmos and subatomic matter, we replace old truths with new truths.

### EXPLANATION, PREDICTION AND STORYTELLING

The goals of science are Explanation Prediction and Story telling

Explanation and prediction are two of major objectives of science. These two goals are not symmetrical; it is possible to explain an event or phenomenon without being able to predict the probability of its occurrence; at the same time, it is possible to predict an event without being able to explain its nature or causes. Mark Blaug identifies two problems that arise from the "Symmetry Thesis." First is the problem; "the history of science contains a number of theories which appear to explain natural phenomena, without however

*predicting them even in a statistical sense.*" (Blaug, 1986, p 274) Darwin's theory of evolution is cited as an example.

Explanation and prediction are not symmetrical.

Second is the problem; "...science, and particularly social science, abound in rules-of-thumb that yield highly accurate predictions about both natural and social events despite the fact that we may have absolutely no idea why these rules-of-thumb work as well as they do. (Ibid.)

Whether explaining or predicting, science places value on precision and rigor of the process. However, one should avoid using the same criteria to evaluate scientific models with different objectives. It is also necessary to avoid attempts at precision and rigor that are not possible. Thomas Mayer cautions economists (the warning applies to all disciplines):

*"...we should draw a much sharper distinction that is usually done between two types of economic theory. One, formalist theory is abstract theory that is concerned with high-level generalization and looks towards axiomization. The other, empirical science theory focuses on explaining past observations and predicting future ones. While both are perfectly legitimate, applying the criteria appropriate to one to evaluate the other generates confusion and misunderstanding. (Mayer's book)...is a plea for a more modest economics that recognizes the inherent difficulty of making precise and indubitable statements about the actual world, accepts that there is a trade-off between rigor and relevance. I certainly agree that one should be as rigorous as one can be: I just oppose trying to be as rigorous as one can not be."* (Mayer, p 7)

An emphasis on rigor and precision may result in attempts to develop theories or models that are esoteric and of little interest to anyone other than the scientist-author.

Stories of science transmit and communicate values.

In addition to explanation and prediction, science and the stories of science also create, shape and transmit individual and social values. Often this is an unintended effect rather than a conscious objective. The study of the evolution of methods in a discipline, such as economics, will hopefully create a greater awareness of this role and a greater understanding of one of the important effects.

## LOGIC

Logic is a study of the principles of reasoning.

Several processes can be used in the discovery, creation and justification of knowledge. Instinct, intuition, abduction, deduction, induction and authority are examples of sources of knowledge. Appeals to authority as a justification for acceptance of knowledge is common but is not a reliable source. Instinct, intuition and introspection were once of great importance, but are not often seen as credible as "science" when seeking justifications for "knowledge" in Western, industrial societies. Research in the cognitive sciences and behavioral economics has recently been investigating intuition as a means of decision-making. Daniel Kahneman (a psychologist) received the Nobel in economics for work in cognitive processes and intuition in economic decisions. However, most discussions of methods in science place primary emphasis on inductive and deductive processes.

### DEDUCTIVE REASONING

Aristotle (384-322BCE) is usually credited with formalizing syllogistic or deductive reasoning. Deductive reasoning is a process that starts with a set of premises

Deductive logic is reasoning from a general premise to a specific conclusion:

(or *a priori* truths) or general principles and through rules of logic, “deduces” a conclusion about a specific case. There are usually two premises: a major premise and a minor premise. If the general principle or major premise were that all the water in the lake was safe to drink, then deductive reasoning would conclude that a specific glass of water from the lake (the minor premise is the water is from the lake) is safe to drink. The internal logic could be correct but if either of the premises were false, correct deductive logic would not yield true conclusions.

## INDUCTIVE REASONING

Francis Bacon (1561-1626) is credited with formalizing inductive reasoning. J.E. Creighton argues that Bacon’s *Novum Organum* was to replace Aristotle as the preeminent guide to the process of acquiring knowledge.

Inductive logic reasons from a set of observations to a specific conclusion.

*“Bacon did for inductive logic what Aristotle did for the theory of the syllogism. It is of course, incorrect to say, as has sometimes been said, that Bacon invented the inductive method of reasoning. ... What Bacon endeavored to do was to analyze the inductive procedure, and to show what conditions must be fulfilled in order that truth may be reached in this way.”* (Bacon, pps vii-viii)

Inductive reasoning is the process of inferring information from empirical observations. If several glasses of water were taken from a lake and each glass of water was shown to be safe to drink, it might be “inferred” that the water in the lake is safe to drink. Because all the water in the lake was not (and possibly could not) be tested there is some probability that all the water in the lake is not safe to drink. Empiricism is rooted in the inductive process and is based on empirical observations. Statistical inference is an application of the inductive method.

While inductive methods are useful, there are pitfalls to avoid. Observations might be incomplete or the interpretation of the observation(s) could be incorrect. The selection of which phenomena to observe and the sequencing of the “facts” can alter the conclusions reached. The application of inference and inductive methods requires judgment and caution in the interpretation of data.

## ABDUCTIVE REASONING

Abductive reasoning is a creative process that is less rigorous than induction.

Abduction is a creative process from which hypotheses arise. Abduction is similar to induction. The differences are that abduction is less formal process that consists of a combination of intuition, experience, observation, deductive reasoning and generates hypotheses which could be wrong. Abduction is the insight that occurs with less conscious formal reasoning than either induction or deduction.

It is the purpose of inductive and deductive reasoning to test the hypotheses that emerge from the process of abduction.

## II Epistemology and Economic Methodology

Epistemology is the study of the nature and limits of knowledge

**E**pistemology is the study of the nature and limits of knowing. Economists are confronted with an ocean of facts and data that are reputed to support a plethora of theories and laws that purport to be the “truth” about economic behavior. Any discipline, whether it is economics, physics, biology or ..., advances because someone questions the received wisdom; both extensions of ideas and new ideas that are created as reactions against result from questions about the received wisdom. If a scientist, economist or practitioner of any

discipline has the "truth," their only task is to make sure others accept that "truth." A bit of humility about what one thinks they know is not a bad thing. A quick survey of some of the basic ideas in epistemology provides an enlightened humility.

## A TAXONOMY OF KNOWLEDGE

Joel Mokyr describes knowledge as propositional and prescriptive

Joel Mokyr classifies knowledge as propositional and prescriptive knowledge. Mokyr, an economic historian, relates the problem of human knowledge to economic growth and the economic problem. Propositional knowledge is "...knowledge (that is to say beliefs) about natural phenomena and regularities." (Mokyr, p 4) Prescriptive knowledge is instructional or knowledge about techniques about how to do something. (ibid)

### PROPOSITIONAL KNOWLEDGE

In Mokyr's taxonomy, propositional knowledge ( $\Omega$ ) can take two forms. He describes these as (1) "the observation, classification, measurement, and cataloging of natural phenomena." And (2) "the establishment of regularities, principles and 'natural laws' that govern these phenomena and allow us to make sense of them." Mokyr's characterization of propositional knowledge is;

Propositional knowledge is knowledge about the fundamental nature of the natural order of things. It is knowledge about patterns and regularities.

"Science, as John Ziman has emphasized, is the quintessential form of public knowledge, but propositional knowledge is much more: the practical informal knowledge about nature such as the properties of materials, heat, motion, plants and animals; and intuitive grasp of basic mechanics (including the six 'basic machines of classical antiquity: the lever, pulley, screw, balance, wedge and wheel); regularities of the ocean currents and the weather; and folk wisdom in the 'apple-a-day-keeps-the-doctor-away' tradition. Geography is very much a part of it: knowing where things are is logically prior to the instructions of how to go from here to there." (Mokyr, p 5)

He argues that for the economic historian what matters is the collective knowledge of what society, as a whole, knows (the union of all statements of such knowledge). Confidence and consensus about knowledge as well as access to and transmittal of that knowledge is of great importance to how propositional knowledge is used. Mokyr characterizes the development of new propositional knowledge as "discovery, the unearthing of a fact of natural law that existed all along but was unknown to anyone in society." (Mokyr,, p 10)

### PRESCRIPTIVE KNOWLEDGE

Prescriptive knowledge is knowledge about how to do things. It is the instructional knowledge about how the regularities in propositional knowledge can be used to achieve objectives..

Prescriptive knowledge ( $\lambda$ ) is the knowledge about how to do something; it is technique or instructional knowledge. This prescriptive knowledge is defined as "sets of executable instructions or recipes for how to manipulate nature." (Mokyr,, p 10) The addition to this prescriptive knowledge is called an "invention." Prescriptive knowledge is not right or wrong it is successful or unsuccessful. Mokyr argues that the industrial revolution and the associated economic growth began when prescriptive knowledge came to be based on proportional knowledge. Individuals can learn to do things without knowing why they work. Once you know why techniques (prescriptive knowledge) work, (propositional knowledge), it is easier to invent improvements to old techniques and develop of new ones.

### AN EXAMPLE

Knowledge about baking includes an understanding of the effects of altitude, leavening, moisture, temperature, gluten and a host of other phenomena on



cakes. This knowledge is propositional knowledge. A cake can be baked by someone in San Francisco with a recipe (prescriptive knowledge) and no knowledge about the effects of altitude on cakes. The recipe will work as long as person doesn't try to bake a cake in Santa Fe, NM (elevation 7200 feet). To modify the recipe so it will work at the new elevation requires propositional knowledge. The development of new recipes ( $\lambda$ ) requires some propositional knowledge ( $\Omega$ ).

## BRIEF SURVEY OF EPISTEMOLOGY

*Karl Popper uses falsification as a method of acquiring knowledge*

Karl Popper [1902-1994] is the primary architect of falsification as a method of science. In his *The Logic of Scientific Discovery*, 1934, he outlines the basic approach taken in what is called the scientific method. He proposes that scientific knowledge grows through a process of making hypotheses about the nature of problems and the falsification or testing of those hypotheses. Popper argues that it is the duty of every scientist to try to disprove or reject his or her hypotheses. If a hypothesis cannot be rejected by empirical evidence, it may be retained as "probably true." All knowledge then is probabilistic; it has not yet been falsified. The process is subject to what statisticians call Type I and II (or alpha and beta) errors. Type II errors occur when a false hypothesis is accepted as "true." When a "true" hypothesis is rejected as false a Type I error has occurred.

*Popper's approach makes Knowledge probabilistic, it is probably true that . . .*

Thomas Kuhn [*The Structure of Scientific Revolutions*, 2nd ed, 1962,1970] offers another explanation for the evolution and change of scientific thought in the "hard sciences." His explanation is often applied to economics and social sciences. Kuhn used the concept of "paradigms" and paradigm shifts to explain the process. The term, paradigm, is often used and abused in discussions.

*Kuhn sees knowledge as paradigms.*

Kuhn's approach is essentially a "truth by consensus" which is contained in the paradigm. This paradigm (and its associated "truth by consensus") is practiced until there are "anomalies" or problems that the existing paradigm cannot explain. Then an alternative paradigm with greater explanatory powers replaces it. He argues that a science operates within a paradigm. This paradigm is characterized by,

*Knowledge is a form of consensus*

- the "community structure of science"
- or the "disciplinary matrix" which consists of symbolic generalizations (deployed without question),
- shared commitments to a set of beliefs and a set of values.

*If a paradigm cannot resolve "too" many anomalies, a new paradigm emerges.*

The members of the science use this paradigm to resolve anomalies. When an anomaly of major significance or a large number of anomalies cannot be explained, the paradigm must be questioned and a new paradigm for that science developed. In this manner "science progresses."

*Lakatos and scientific research programmes in the development of knowledge*

Imre Lakatos' method is expressed in his book, *Proofs and Refutations*, [Cambridge University Press: Cambridge, 1976]. Lakatos' approach, while in the tradition of one of his teachers, Karl Popper, is critical of both Popper and Kuhn. He advocated a more sophisticated form of falsification of "groups of theories" and combined it with "scientific research programmes (SRP's)" which were more specific than paradigms. Lakatos' SRP consists of two elements, the "hard core, protective belt" and the "positive heuristic." (Pheby, John, *Methodology and Economics: a Critical Introduction*, M.E.Sharpe, 1988,, p 56) The hard core is constructed of "basic axioms and hypotheses" that are accepted without question and is used as a defense mechanism. The positive heuristic is the

body of theories and problems that drive the research programmes. (Pheby, p 56)

Kuhn's approach can be contrasted with that of Karl Popper and Imre Lakatos.

Popper saw the advancement of knowledge as the result of the falsification of testable hypotheses. Those hypotheses that were not disproved were accepted as "probably true." Lakatos took the middle ground. Rather than falsifying a hypothesis or the whole paradigm, he felt that the process was based on "scientific research programs." A school of economic thought may represent a paradigm (in a Kuhnian sense) or a scientific research program (in a Lakatian sense).

A more extreme view is expressed in Paul Feyerabend's book, *Against Method* (Verso: London, 1988, originally published by New Left Books, 1975). He advocates an approach to science that has been called "theoretical anarchism." Feyerabend argues that the "success of science cannot be used as an argument for treating yet unsolved problems in a standardized way" and scientific achievements can "be judged only after the event." (Feyerabend, p 2) Feyerabend's approach to the methodology of science is radically different because of his objectives. He claims his purpose is "humanitarian not intellectual" in that he wants "to support people not advance knowledge." He is "against ideologies that use the name of science for cultural murder." (Feyerabend, p 4] While he does not disavow the title of "theoretical anarchist," he does provide insights into the evolution of science and knowledge. Feyerabend summarizes some of his insights:

*Feyerabend takes a more pragmatic approach to the process of knowing. Knowledge is interpreted as human interpretation of patterns.*

*"Neither science nor rationality are universal measures of excellence. They are particular traditions, unaware of their historical grounding." (Feyerabend, p 231)*

*"Yet it is possible to evaluate standards of rationality and to improve them. The principles of improvement are neither above tradition nor beyond change and it is impossible to nail them down." (Feyerabend, p 248)*

*"Science is a tradition among many and a provider of truth only for those who have made the appropriate cultural choice." (Feyerabend, p 256)*

*"The entities postulated by science are not found, and they do not constitute an 'objective' stage for all cultures and all of history. They are shaped by special groups, cultures, civilizations; and they are shaped from a material which depending on its treatment, provides us with gods, spirits, a nature that is a partner of humans rather than a laboratory for their experiments, or with quarks, fields, molecules, tectonic plate. Social monotony thus implies cosmic monotony - or 'objectivity,' as the latter is called today." (Feyerabend, p 260)*

Science (and economics) is not free from ideology. It is necessary to understand the prevailing ideology in a culture, society, group or corporation in order to interpret one's own perspective. Imagine a luxury train, the Orient Express. You find your way to the club car and find a billiard table. You shoot the cue ball down the table (parallel to the tracks) in the direction the train is coming from at the same speed the train is traveling. You perceive that the ball is rolling toward the other end of the table. To some one observing the train pass by, as they peer into the window they perceive that the cue ball is stationary and that the table, you and the train are moving away from the point where the ball is fixed. Your perspective determines your interpretation of the event.

*Science and economics are not free from ideology*

## MILTON FRIEDMAN

Friedman argues that there are positive and normative aspects to economics.

Milton Friedman [1912- ] is one of the best-known economists of the 20<sup>th</sup> century. His article, "The Methodology of Positive Economics" in *Essays in Positive Economics* [1953] was one of the most important influences on economic thought. In this important piece, Friedman sets the standards for *normative* and *positive* economics as well as influencing several generations of economists. He argues that positive economics is "independent of any ethical position" and its task is to provide "a system of generalizations that can be used to make predictions about the consequences of any change in circumstances;" it is deals with "what is." (Friedman, p 4) Normative economics is dependent on positive economics and deals with "what ought to be."

Positive economics is "what is."

Normative economics is "what ought to be."

Friedman argues that economics can be a positive science. The structure of this positive science, like all positive sciences, consists of two parts; first, is a language and second, is a "body of substantive hypothesis designed to abstract essential features of complex reality." (Ibid. p 7) According to Friedman, language is a set of tautologies whose primary function is to organize and classify empirical material to facilitate our understanding. This language has no substantive content. This component or element in positive science may be evaluated by formal logic to determine if it is consistent and complete. Empirical or factual evidence and presumably the use of the language will reveal how well the analytical filing system functions. (Ibid.)

Friedman uses the accuracy of predictions to validate knowledge.

Assumptions do not have to be realistic

The body of "substantive hypotheses" or theory is primarily to yield "valid and meaningful (i.e. not truistic) predictions about phenomena not yet observed." (Ibid.) The only test of the validity of the hypotheses or theory is its "predictive power for the class of phenomena it is intended to 'explain.'" If there are alternative hypotheses that may be chosen, Friedman suggests two criteria; simplicity and fruitfulness. Simplicity is an echo of the work of William Ockham [1285-1347 (49?)] or Ockham's razor. Fruitfulness reflects the precision of predictions as well as their relevance for wider or more generalized applications. A more "fruitful" set of hypotheses would also suggest additional lines of research. The validity of a theory cannot be evaluated on the basis of the reality of the assumptions, rather a

*"...hypothesis can be tested only by the conformity of its implications or predictions with observable phenomena; but it does render the task of testing hypotheses more difficult and gives greater scope for confusion about the methodological principles involved. More than other scientists, social scientists need to be conscious about their methodology." (Friedman, p 40)*

## DEIRDRE MCCLOSKEY

McCloskey argues that rhetorical methods are the way in which knowledge is attained.

Of all the individuals whose views on methodology have been discussed, Friedman and McCloskey are the only writers who can be identified as "economists." McCloskey's book, *The Rhetoric of Economics*, (University of Wisconsin Press: Madison, 1985) has gained widespread attention among economists. McCloskey argues that the method economists claim to follow is not the method that they follow in practice. Most economists, as well as individuals in most other disciplines, claim to follow the "scientific method" of falsification (i.e. hypothesis testing), usually in the format expressed by some integration of Popper/Lakatos/Kuhn. McCloskey charges that as a result of attempts to create and follow a modern science, "modernism" has become a dominant theme. According to McCloskey, *modernism* is a "word that can be fully defined only in use." (McCloskey, 1985, p 5) She points out that modernism is not limited to

economics but is also present in philosophy, architecture, music, and politics. This list can be expanded to include management, accounting and a multitude of other fields. While it may not be possible to give a precise definition of modernism, it is possible to characterize its nature. Some of its characteristics are identified in the following quotes about modernism:

*"knowledge is to be modeled on the early twentieth century's understanding of certain pieces of nineteenth-century and especially seventeenth-century physics."* (McCloskey, 1985, p 5) (Presumably, Comte, Descartes and Newton are the seventeenth century physicists in the reference.)

It is the *"notion that we can know only what we cannot doubt and cannot really know what we can merely assent to."* (McCloskey, 1985, p 5)

*It includes the belief that "only falsifiable hypotheses are meaningful; the evidence is consistent with the hypothesis; of tastes one ought not, of course, to quarrel."* (McCloskey, 1985, p 6)

*"Modernism views science as axiomatic and mathematical and takes the realm of science to be separate from the realm of form, value, beauty, goodness, and all unmeasurable quantity."* (McCloskey, 1985, p 6)

It is *"functionalist and given to social engineering and utilitarianism, the modernist is antihistorical, uninterested in cultural or intellectual traditions."* (McCloskey, 1985, p 6)

Rhetoric  
includes:

Facts

Logic

Metaphor, and

Stories

McCloskey advocates the use of classical rhetoric to advance economic theory through the same methods used in literary criticism. Rhetoric, which includes the use of fact, logic, metaphor and story, provides the criterion and framework that guides the development of science.

Deirdre McCloskey argues that,

*"(E)conomists do not follow the laws of inquiry their methodologies lay down."* (McCloskey, 1983, p 482)

Rather,

*"Economists in fact argue on wider grounds and should. Their genuine workaday rhetoric, the way they argue inside their heads or their seminar rooms diverges from the official rhetoric."* (McCloskey, 1983, p 482)

McCloskey proposes that the development of "knowledge" about economic relationships and behavior is pushed forward by "rhetoric." The many dimensions of rhetoric emerge from quotes McCloskey chooses from Wayne Booth. Rhetoric is:

*"the art of probing what men believe, rather than proving what is true according to abstract methods."*

*"the art of discovering good reasons, finding what really warrant assent, because any reasonable person ought to be persuaded."*

*"careful weighing of more-or-less good reasons to arrive at more-or-less probable or plausible conclusions - none too secure but better than would be arrived at by chance or unthinking impulse."*

*the "art of discovering warrantable beliefs and improving those beliefs"*

*in shared discourse."*

*not to "talk someone else into a preconceived view; rather it must be to engage in mutual inquiry."* (McCloskey, 1983, pp. 482-483)

McCloskey argues that,

*"Each step in economic reasoning, even the reasoning of the official rhetoric, is metaphor. The world is said to be 'like' a complex model, and its measurements are said to be like the easily measured proxy variable to hand."* (McCloskey, 1983 p 502)

Even "...mathematical theorizing is metaphorical and literary." (McCloskey, 1983, p 505) In *If You're So Smart*, published in 1990, McCloskey argues that,

*"Like other arts and sciences, that is, economics uses the whole rhetorical tetrad: fact, logic, metaphor, and story. Pieces of it are not enough. The allegedly scientific half of the tetrad, the fact and logic, falls short of an adequate economic science, or even a science of rocks or stars. The allegedly humanistic half falls short of an adequate art of economics, or even a criticism of form and color."* (McCloskey, 1990, p 1)

To consider the rhetoric and storytelling of economics does not mean that economics is or should be without method. Rhetoric provides a framework and criterion that guides the development of economic theory. It is rhetoric that makes theory more relevant, identifies the ethical content and increases flexibility in the evolution of economic knowledge.

## WHICH METHODOLOGY IS "CORRECT?"

Which of the methodological arguments is "correct" and should be followed?

There is not a universally accepted answer in any academic discipline nor among those who study the philosophy of science. To understand and contribute to any field of knowledge, it is necessary to be aware of the methodology(ies) that have guided the development of accepted ideas, hypotheses, theories, concepts, tools, values and ideologies that are used within that discipline. Ignorance of methodology dooms an individual to perpetual training and re-training rather than opening the door to education.

Methodological problems apply to all knowledge including Newtonian mechanics, the theory of relativity and quantum mechanics as well as economics. In economics, the methods used and ideological preconceptions of individual economists and schools of thought help to explain many of the differences in explanations of problems and policies advocated.

Modern economic theory has a long tradition of following a "modernist" methodology characterized by a strong faith in empiricism and rationalism. Within modern economics, knowledge is believed to be advanced by inductive or empirical investigations that can verify (or fail to falsify) "positive" concepts, hypothesis, theories or models developed by deductive or rationalist logic. Normative economics (or the study of what "ought to be") is seen as distinctly separate from positive economics.

When economics is studied as a process of provisioning, normative and positive issues become interrelated.



## The Standard View of the Scientific Method

The process by which knowledge is acquired is often called the "scientific method." There are several variations of the way in which the scientific method are characterized, but the steps usually are;

- 1) recognition of a problem
- 2) creation of a hypothesis about the nature of the problem
- 3) collect relevant data to test the hypothesis
- 4) propose a solution to the problem
- 5) act on the proposed solution or policy to solve the problem
- 6) monitor the results of the policy; collect and analyze data on the application of the policy
- 7) make adjustments in the hypothesis and solutions as needed.

The first step in the so-called scientific method requires an integration of positive and normative issues (normative and positive aspects of economics was discussed under the section on Milton Friedman). The recognition of a problem is a recognition of a deviation between what should be and what is. If my shoes do not hurt my feet (a positive statement), I probably don't think about my shoes. If my shoes hurt my feet (a positive statement) and I think they shouldn't hurt my feet (a normative statement), I recognize a problem. If there is unemployment (positive statement) and believe there should be unemployment (normative statement), a problem is not recognized. If there is unemployment and think that there should not be unemployment, a problem is recognized.

# Alternative Microeconomics

## Four Chapter

### Individual and Community

## I INDIVIDUALS AND COMMUNITY

*A community is a group of individuals with a set of shared values and objectives.*

*Social institutions are the result of human behavior.*

*Social Institutions also influence human behavior.*

*Institutions, such as markets can be misused.*

*The interests of all individuals and groups are not the same and may be in conflict..*

A community is made up of a group of individuals. One of the characteristics of a community is that there is an intersection of a set of shared values and objectives held by the individuals. Social institutions (embedded patterns of behavior within a society) represent these shared values. Only under rare circumstances would a group of individuals have the same set of shared objectives. Because they are individuals, it is probable that some of their objectives will be different and conflict or compete. It is necessary for the community to have a set of social institutions to coordinate competing values and ends.

Social institutions both arise from human behavior and influence their behavior. Traditions, mores, customs and more formal institutions (such as laws), define the range of choices. Markets are also a social institution. A voluntary contract between two individuals is a social mechanism to coordinate activities. Markets require a social infrastructure. Trust, expectations about buyers and sellers providing information (no fraud, deceit or duress), obligation to fulfill contracts and expectations that individuals will do no harm to others, facilitates the operation of markets. Adam Smith (1723-1790) points out that markets are subject to abuse:

*People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices. It is impossible indeed to prevent such meetings, by any law which either could be executed, or would be consistent with liberty and justice. But though the law cannot hinder people of the same trade from sometimes assembling together, it ought to do nothing to facilitate such assemblies, much less to render them necessary. (Smith WN, p 128)*

Participants in markets may also use formal institutions (law, regulations) to benefit themselves:

*The interest of the dealers, however, in any particular branch of trade or manufactures, is always in some respects different from, and even opposite to, that of the public. To widen the market and to narrow the competition, is always the interest of the dealers. To widen the market may frequently be agreeable enough to the interest of the public; but to narrow the competition must always be against it, and can serve only to enable the dealers, by raising their profits above what they naturally would be, to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens.*

*The proposal of any new law or regulation of commerce which comes from this order ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it. (Smith WN, p 250)*

## II INSTITUTIONS

Douglass North argues that

*Institutions are the rules of the game. They structure human behavior (an "exchange" or interrelationships.*

*Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change. (North, 1990, p 3)*

North expands "human exchange" to include human interactions that include "political, social or economic" phenomenon. Human exchange is interpreted as "human interaction on social, political and economic levels." North's broader definition will be used in this chapter even though the term "exchange" is quite specific:

*In North's quote, exchange refers to human interaction. Exchange may be more narrowly used to describe a contractual relationship based on quid pro quo.*

*Exchange involves a quid pro quo, i.e. an exchange of private property rights between individual agents. The terms of the exchange are clearly specified: "I will give you this if you will give me that." The goods to be exchanged are clearly specified, as are the terms of the exchange. (Chapter 2, p 15)*

North identifies the roles of these institutions;

*Institutions;*  
 1) Reduce uncertainty  
 2) Are constraints  
 3) May be formal or informal  
 4) Are both positive and negative  
 5) Are different from organizations

- *"Institutions reduce uncertainty by providing structure to everyday life." (North, p 3)*
- *"Institutions include any form of constraint that human beings devise to shape human interaction. Are institutions formal or informal? They can be either, and I am interested both in formal constraints – such as rules that humans beings devise – and informal constraints – such as conventions and codes of behavior." (North, p 4)*
- *"Institutional constraints include both what individuals are prohibited from doing and, sometimes, under what conditions some individuals are permitted to undertake certain activities." (North p 4)*
- *"A crucial distinction in this study is made between institutions and organizations. Like institutions, organizations provide a structure to human interaction. (North, pp 4-5; North points out that organizations are considered as one of the players or actors while institutions are the underlying rules of the game.)*

*Institutions are created by humans and evolve over time*

*"Institutions are a creation of human beings. They evolve and are altered by human beings; . . . Integrating individual choices with the constraints institutions impose on choice sets is a major step toward unifying social science research." (North, p 5)*

North refers to some institutions as "conventions and codes of conduct." Traditions, customs, mores, rules of thumb are other examples of implicit

*Institutions act as short cuts to solving problems.*

institutions that are part of the rules of the game. These habitual patterns of behavior or embedded rules may arise spontaneously. Individuals seek solutions to problems. When they find something that works (or provides a reasonable solution), they learn to try the same approach when the same or new problems arise. These institutions become short cuts to analyzing and devising new solutions for every new problem.

*Implicit institutions are communicated through tradition, custom, religion and the like.*

These implicit institutions may be transmitted to others in a variety of ways. Custom and traditions are the most obvious. It is possible to create codes of conduct that may be communicated through religious beliefs. Religious law and jurisprudence are common to almost all societies. In societies that depend on interpersonal relationships, these implicit institutions may be dominant in influencing behavior patterns.

*Where implicit institutions are weakened, explicit institutions may emerge.*

In cases where the community becomes complex, the effects of social values on individual choices may be weakened. If implicit social institutions are weakened, force of law (formal explicit institutions) may be used to encourage some behavioral patterns and discourage others. Adam Smith had a manuscript on jurisprudence destroyed at the time of his death (1790). Copies of students' notes on Smith's lectures on jurisprudence (1762-63, 1766) were found and published as *Lectures on Jurisprudence (LJ)*. In these notes, Smith describes the role of law within a society.

*There are two major approaches to jurisprudence; Common law and the Napoleonic code.*

The two traditions of common law and the Napoleonic code provide the framework for the legal systems in most Western industrial countries. Common law is based on *stare decisis*; i.e. laws emerge over time on the basis of precedence. As society, technology, relationships, environment and other features of society change, laws are modified. The Napoleonic code (dates from 1804) is based on Roman Law. It establishes a clear legal framework on issues of property, inheritance, the family and individual freedom. Both approaches provide formal rules of the game and may be considered as an explicit, formal institution.

The relationship between the legal and economic system is well established. John R. Commons (*Legal Foundations of Capitalism*, 1924) and Richard Posner (*The Economic Analysis of the Law*, 1973, sixth edition 2003) are foundations for two traditional approaches to law and economics.

## **Institutions and Costs**

*Transaction costs are the costs involved with the transfer (exchange) of ownership.*

The provisioning process and the allocation process both involve the ownership of resources and goods as well as the mechanisms by which the rights of ownership are transferred. Within a society, the transfer of ownership of goods is not without costs. In the case of eminent domain, there are costs (opportunity costs) to the authority that defines and enforces the transfer of ownership of goods (property rights). Individuals who are affected by eminent domain incur costs as well. There are also costs of using exchange. These costs are the effort (sacrifice) of individuals to obtain information about goods, other individuals who are willing to enter a contract and the effort to negotiate the contract or terms of exchange.

*Social institutions and organizations emerge to reduce transaction costs.*

Social institutions and organizations are a social response to reduce the costs of exchange and eminent domain. Social institutions also facilitate and enforce reciprocity. The costs of using exchange are referred to as "transaction costs." (see Coase, "Nature of the Firm". 1937)

The institutions define the rules of the game; provide individuals with

information and some degree of certainty in their social interactions. This reduces the time and effort (transaction costs) that individuals devote to the allocation problem.

Institutions and organizations are human creations that are intended to solve problems. It should be noted that these human creations might be intentional and explicit or unintentional and implicit. As in all human endeavors, some attempts are more successful than others; i.e. some institutions are more successful at achieving objectives than others.

*While social institutions evolve as short cuts to problem solving, the vested interests may try to prevent changes in institutions*

Institutions arise as solutions to a given set of problems. Should the elements of the problem change (the actors, agents, technology, information, other institutions), the institutions may need to adapt. However, any set of institutions is correlated with the interests of particular individuals. Some of these individuals benefit from the particular structure while others are not. Those who benefit from a particular institutional structure have a vested interest in preventing changes in the institutions. These vested interests may use their positions and power to prevent institutional change and to work to alter institutions (particularly explicit institutions such as law) in their interests. Consequently, the institutions that are prevalent at any point in time may lag behind environmental, technological and social changes.

Patents, copyrights, regulations of communication industries (radio, television, newspapers, internet and the like) determine the behavior of the agents and firms in those industries. George Stigler (1911-1991) described a "capture theory of regulation." (Stigler, 1971, Published first in 1962 with Claire Friedland) He argues that when an industry is regulated, it is in the interests of that industry to capture the regulatory agency and influence its policies. The communication industries have a greater incentive to influence the policies of the Federal Communications Commission (FCC) than the average person. Recent actions by the FCC have allowed greater concentration of news media. Companies that publish music have more interest in the laws regarding the ownership (copyrights) and royalties to music than the public; the "Napster" incident on downloading music files from the Internet is an example.

The insurance, pharmaceutical, hospital and medical industries have more interest in the social institutions that influence the delivery of health care than individuals. Health insurance emerged in the mid 1930's as a solution to the problems of random, catastrophic health care costs and how hospitals and doctors would receive financial payment. The insurance and health care providers (doctors, pharmaceutical, hospitals and insurance industries and firms) have a vested interest in maintaining the system that maintains their sources of revenue.

The vested interests have an incentive to shape the formal and informal institutions that relate to their activities.

## **Morality, Justice and a Stable Society**

*Institutions also exist to promote social values of justice, morality, peace, etc.*

Institutions reduce the costs of the allocation process. Additionally, justice, an orderly society, tranquility, security, peace are objectives that are commonly held in many societies. Adam Smith (1723-1790) is used to express these ideas here since he is generally regarded as one of the first writers to advocate a system based on morality, markets and law. He wrote



the *Theory of Moral Sentiments* in 1759 to describe his view of the role of sympathy and empathy in human behavior. He argues that justice is essential for an orderly society. On the first page of *Theory of Moral Sentiments*, Smith writes;

*How selfish man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. Of this kind is pity or compassion, the emotion which we feel for the misery of others, when we see it, or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrow of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society is not altogether without it. (Smith, *TMS*, p 47)*

Smith continues on the role of society in the formation of individual values;

Society provides the context for human values and morality.

*Were it possible that a human creature could grow up to manhood (sic) in some solitary place, without communication with his (sic) own species, he could no more think of his own character, of the propriety or demerit of his own sentiments and conduct, of the beauty or deformity of his (sic) own mind, than of the beauty or deformity of his (sic) own face. All these are objects which he cannot easily see, which naturally he does not look at, and with regard to which he is provided with no mirror which can present them to his view. Bring him into society, and he is immediately provided with the mirror which he wanted before. It is placed in the countenance and behavior of those he lives with, which always mark when they entered into, and when they disapprove of his sentiments; and it is here that he first views the propriety and impropriety of his own passions, the beauty and deformity of his own mind. (Smith, *TMS*, p 204)*

Smith continues;

Individuals need the assistance of others. If morality and beneficence does not provide the assistance that is needed, mercenary self interest (exchange) may be used.

*It is thus that man, who can subsist only in society, was fitted by nature to that situation for which he was made. All the members of human society stand in need of each other's assistance, and are likewise exposed to mutual injuries, Where the necessary assistance is reciprocally afforded from love, from gratitude, from friendship, and esteem, the society flourishes and is happy. All the different members of it are bound together by the agreeable bands of love and affection, and are, as it were, drawn to one common centre of mutual good offices.*

*But though the necessary assistance should not be afforded from such generous and disinterested motives, though among the different members of society there should be no mutual love and affection, the society, though less happy and agreeable, will not necessarily be dissolved. Society may subsist among different men, as among different merchants, from a sense of its utility, without any mutual love or affection; and though no man in it should owe any obligation, or be bound in gratitude to any other, it may still be*

*upheld by a mercenary exchange of good offices according to an agreed valuation.*

*Society, however, cannot subsist among those who are at all times ready to hurt and injure one another. (Smith TMS, p 166)*

Justice is a necessary element of any society

*. . . Society may subsist, though not in the most comfortable state, without beneficence; but the prevalence of injustice must utterly destroy it. . . . Justice, on the contrary, is the main pillar that upholds the whole edifice. If it is removed, the great, the immense fabric of human society, that fabric, if I may say so, to have been the peculiar and darling care of nature, must in a moment crumble into atoms. (Smith TMS, p 167)*

*As society cannot subsist unless the laws of justice are tolerably observed, as no social intercourse can take place among men (sic) who do not generally abstain from injuring one another; the consideration of this necessity, it has been thought, was the ground upon which we approved the enforcement of the laws of justice, by*

Smith recognizes that beneficence and morality cannot be the only mechanism that creates order in society. He argues that;

Morality may be corrupted by the tendency of humans to admire wealth rather than wisdom.

*This disposition to admire, almost to worship, the rich and the powerful, and to despise, or, at least, to neglect persons of poor and mean condition, though necessary both to establish and maintain the distinction of ranks and the order of society, is, at the same time, the great and most universal cause of the corruption of our moral sentiments. That wealth and greatness are often regarded with the respect and admiration which are due only to wisdom and virtue; and that the contempt, of which vice and folly are the only proper objects, is often mostly unjustly bestowed upon poverty and weakness, has been the complaint of moralists of all ages. (Smith TMS, p 126)*

Smith is not the only writer to argue the importance of justice and morality in the proper functioning of society. Plato, Aristotle, St Thomas, and a host of writers argue the role of justice. At the same time, most recognize that beneficence and cannot be the only motivating force in society.

The need for morality is based on biology and ecology; Joan Robinson argues:

Common feelings in a society are expressed in ideology.

*A society cannot exist unless its members have common feelings about what is the proper way of conducting its affairs, and these common feelings are expressed in ideology. (Robinson, p 3)*

Both self interest (ego) and compassion for others.

*The biological necessity for morality arises because, for the species to survive, any animal must have, on the one hand some egoism—a strong urge to get food for himself (sic) and to defend his means of livelihood; also—extending egoism from the individual to the family—to fight for the interests of his mate and young. On the other hand, social life is impossible unless the pursuit of self-interest is mitigated by respect and compassion for others. A society of unmitigated egoists would knock itself to pieces; a perfectly altruistic individual would soon starve. There is a conflict between contrary tendencies, each of which is necessary to existence, and there must be a set of rules to reconcile them. Moreover, there*

Justice and concern for others is crucial for civil society.

*must be some mechanism to make an individual keep the rules when they conflict with his immediate advantage. (Robinson, p 4) . .*

*Since the egotistic impulses are stronger than the altruistic, the claims of other have to be imposed upon us. The mechanism by which they are imposed is the moral sense or conscience of the individual. (Robinson, p 5) . . .*

*But observe, it is the honesty of other people that is necessary for my comfort. (Robinson, p 6)*

Justice and concern for others is an important objective that is often reflected in the golden rule: "Do unto others as you would have them do unto you." Or to quote Ivan Hill,

*Men of many ages have considered the Golden Rule to be the fundamental moral imperative. Confucius once was asked, 'Is there one word which may serve as a rule of practice for all of one's life?' He answered, 'Is not reciprocity such a word? What you do not want done to yourself, do not do to others.'" (Hill, p 4)*

A just and moral society where humans can live in a peaceful environment is an objective held by many philosophers through the ages. Perhaps for some, the history of conflict and war casts doubt on a human objective of justice. Alternatively, perhaps conflicts and wars occur because of feelings or injustice.

*Creativity, family, relationships and respect are important objectives for individuals.*

Tradition, customs, mores, and other social institutions are mechanisms through which individuals acquire common values. The size of one's family, forms of marriage, responsibility for children or parents, expectations about disposal of wastes, use of resources, obligations to care for less fortunate people, trust, theft, voting, creativity, duty to family (country, etc) attitudes about stewardship, are examples of values that may be generally held by the members of a community. These values influence the choices that individuals make.

### III AGENTS

*An agent has the authority to select and act on alternatives to achieve ends.*

**A** decision also implies the existence of an agent. An agent is an individual who has the authority to evaluate, select, and act on alternatives to achieve an end. The agent may act for themselves or on the behalf of a principal. Agents choices may be based on intuition, habits (rules of thumb, institutions), explicit rules or reason.

*Competing ends can be coordinated by exchange, reciprocity, eminent domain, and philanthropy*

Any decision implies that there is an end, objective, or goal that an agent wishes to achieve. Humans seek means to achieve ends. As suggested above, decisions based on reason must have an objective. Intuition as a method for making decisions also implies that a result is desired. Rules and habits (or social institutions) arise because there is some desired end to be accomplished. The question is what is the origin and nature of the objectives.

Both the ends and means may be influenced or constrained by resource endowment, technology, or social institutions (such as customs, traditions, markets and law).

In the case of an agent or agents representing a principal, there may be a conflict or incompatibility among their objectives. This is referred to as the

The principal/agent problem is the result of conflicting goals and lack of information.

principal/agent problem. The agent has a conflict of interest. A stockbroker acts as an agent for an investor; a doctor may act as the agent for a patient. The lawyer acts as an agent for her client, the principal. The goal or end of the investor may be to maximize earnings on their assets. The end or objective of the stockbroker may be to maximize their commission. In the short run, the broker may sacrifice the earnings of the investor to maximize commissions. Hopefully, in the long run the broker will recognize that the short term strategy will result in the loss of the investor as a client. The principal must have some knowledge and information regarding the agent's behavior. In a complex world, this does not always happen. Enron is an example of the principal/agent problem. The interests (ends) of the CEO and management (the agents) were inconsistent and had priority over the goals of the stockholders (principals).

A code of ethics helps to ameliorate the principal/agent problem in some cases.

In a complex world where it is difficult for principals to have information to evaluate all the action of the agents, a code of conduct or code of ethics may be important as a means to get the agent to act for the principal. The Hippocratic oath is a social institution to insure the physician acts in the principals interests. Accountants and lawyers are other examples of professions that rely heavily on codes of ethics to resolve conflicts between the principal and agent.

## Organizations and Agents

Organizations are human creations that are different from social institutions.

Organizations are another way that the cost of economic activities. North distinguishes between institutions and organizations. Both provide structure to human interactions. Ronald Coase (1910-) sees both as mechanisms to reduce the costs of transferring ownership. (Coase, 1937)

The crucial difference is that institutions are part of the rules of the game and organizations are participants in the game. The firm (or any organization) arises because there are costs to using the "pricing mechanism."

Coase's idea of transaction cost is crucial to explaining the existence of firms and organizations.

*What the prices are have to be discovered. There are negotiations to be undertaken, contracts to be drawn up, inspections to be made, arrangements to settle disputes, and so on. These costs have come to be known as transaction costs. Their existence implies that methods of co-ordination alternative to the market, which are themselves costly and in various ways imperfect, may nonetheless be preferable to relying on the pricing mechanism (market? Author's question), the only method of co-ordination normally analyzed by economists. It was the avoidance of the costs of carrying transactions out through the market that could explain the existence of the firm, in which the allocation of factors came about as the result of administrative decisions.*

*In the "Nature of the Firm" I argued that in a competitive system there would be an optimum of planning since a firm, that little planned society, could only continue to exist if it performed its co-ordination function at a lower cost than would be incurred if co-ordination were achieved by means of market transactions and at a lower cost than this same function could be performed by another firm. . . .*

*I argued in "The Nature of the Firm" that the existence of transaction cost leads to the emergence of the firm. (Coase 1995,*

p 8-9)

A firm is a small planned society that uses administrative decisions rather than exchange (or reciprocity).

The firm (or any organization) comes into existence to create a small “planned society” and to use administrative decisions to allocate resources because it would be more costly to use market exchange. Firms (or organizations) may be for profit, not-for-profit, cooperatives, sole proprietorships, partnerships or corporations. There are many ways of categorizing organizations.

Within a firm the CEO, Board of Directors, shareholders, Vice-President of Marketing, Vice-President of Production and the assembly line workers may have competing objectives that will be resolved by authority, contract, or some other social institution. There are managerial techniques that might be used to coordinate the activities of the diverse groups in a firm.

In a family, the parents may have different ends than the children. There are parental “instincts,” love and social expectations as well as laws that insure the parents act in the child’s interests.

The principal/agent problem is a major problem within a firm or organization.

Within an organization, the principal/agent problem becomes important. Usually a manager (CEO) makes administrative decisions that affect many other groups. Their administrative decisions may be guided by general policies and guidelines established by a Board of Directors who in turn is constrained by the shareholders (or owners). The objectives of the shareholders may or may not be reflected by the decisions of the manager. The manager may have a different set of objective and the shareholders may or may not have information (or control) over the decisions of the manager. Kenneth Lay and the management of Enron is an example of the principal/agent problem.

## IV OBJECTIVES

The alternative chosen to achieve and end is called the means

An objective, goal or end is something that an individual or group of individuals hopes to achieve. There may be many alternatives that will potentially achieve the end or goal. Some alternatives have a higher probability of success. The alternative that is selected, through reason, rules, habits or intuition, is the means.

Both the means and the ends may be influenced by the individual’s environment

It is not always clear how humans create their objectives or ends. One hypothesis is that they are capable of thought and can imagine alternative states or conditions. If the alternative state is perceived as preferable to the existing state, the alternative state becomes an end. This process necessarily requires a subjective valuation or ranking of alternative states or conditions. I am hungry. I can perceive or imagine myself not being hungry. Not being hungry is preferable to being hungry so the objective or end is to reach the preferred state. The mind is capable of recognizing an incongruity between what is and what I imagine can be. I may seek the means to satisfy my hunger through reason. Intuition, rules or habitual patterns of behavior may also suggest means of satisfying my hunger.

Social forces may influence individuals objectives.

Many substances will satisfy hunger. Geographic differences and resource endowment may alter what people choose to eat. Inuit people eat whale and sea lion. In the southwestern United States pinto beans, corn and chili peppers are favorites. In France, escargot is a delicacy. Individuals often develop a “taste” or preference for a food they ate as a child. As a result, we often think of foods as representing different social or ethnic groups. Italian, Chinese, Mexican, Indian are examples of ethnic foods that



represent different social groups from different locations.

*The means and ends can become confused.*

Hunger is a physiological stimulus so it is easy to recognize the incongruity between being hungry and not being hungry. Other events are more complex. I have shelter that is adequate (a 700 square foot shelter that has plumbing and heat) but can imagine a larger house (3000 square foot with a den and multiple bathrooms) that I would prefer. If the 700 square foot house is adequate, why is the larger house preferred? Is it because I perceive that my neighbors (the community) associate the bigger house with status? Do the values of the community influence my preferences? If my objective or end was to acquire status, the large house was the means to achieve that end. If my objective was to have enough room for a large family, the large house may be the means to achieve that end. To the casual observer the acquisition of a large house may incorrectly be seen as the desired end.

Economics is a study that is based on scarcity of the means to achieve objectives. As a result, choices must be made on the relative values that are placed on the competing objectives. To repeat from above, Warren Samuels argues that the *"economy is a process of valuation... That to behave and to choose is to engage in valuation and thereby to participate in the social, or socioeconomic, valuation process."* [Samuels p ix] He goes on to point out that, *"the economy encompasses more than the market..."* and *"that other nonmarket valuational processes exist."* These valuational processes are used to choose among competing ends, or objectives.

### **ECONOMIC OBJECTIVES**

*There may be tradeoffs between quantifiable and non-quantifiable objectives.*

Justice, respect from others and creativity are not easily measured. Income, quantities of goods and prices are more easily measured. There are many complexities in measuring incomes, quantities of goods and prices. In spite of measurement problems, individuals tend to focus on phenomena that can be ranked or associated with a magnitude (or number). This is particularly a problem when quantifiable objectives are to be traded off for non-quantifiable objectives. Examples include an individual who sacrifices a larger salary for a job with more activities that are creative or to remain near a personal relationship. The appreciation of environment or wildlife may be sacrificed for jobs or timber production.

*There are also tradeoffs between personal objective and economic objectives.*

Economic objectives are complex linkages. Utilitarianism is the philosophical foundation of modern economics. The perceived objective is to maximize the utility or welfare of the members of society. In a simplistic world, the welfare or utility of the community is the sum of the utilities of each member of that society. Therefore, if each individual maximizes their utility it will maximize the utility of the group. The maximization of each individual's utility is consistent with the maximization of the utility of society. This view requires a social mechanism or institution to coordinate or constrain the behavior of individuals. The constraints may be social institutions such as moral rules, mores, customs, laws, or the market.

*In a simplistic world the maximization of individual utility is consistent with the maximization of social utility.*

*Social institutions constrain and guide individual behavior.*

Since it is not possible to measure utility, welfare or happiness, utility is connected to variables that can be measured. In orthodox economics, a person's utility is a function of (or determined by) the quantity of goods and services they consume. Since utility can't be measured and is a function of the quantity of goods, an increase in the quantity of goods consumed is assumed to increase utility or welfare: *more goods are preferred to fewer*

*Since utility can't be measured, the quantity of goods serves as a proxy for utility.*



*goods*. As a result, economic growth, producing more goods (as measured by gross domestic product) becomes a perceived objective.

The desire to measure may result in the use of misleading information.

The inability to measure utility also leads to the use of price as a proxy. The price of a good is perceived as an indicator of its value. Relative prices are seen as information that can be used to rank the worth or value of goods.

The inability to measure utility directly leads to a focus on quantities of goods and their relative prices as a substitute. This process often leads to ignoring or minimizing the importance of non-market objectives. If prices are distorted by lack of information or imperfections in the social institutions, the rankings based on relative prices may be misleading.

In the modern world our objectives and behavior may be altered by advertising. Fashion and fads popularized in the media also shape our objective and the means we choose to achieve them.

# Alternative Microeconomics

## five Chapter

## Criteria to Evaluate Alternatives

### I CRITERIA FOR EVALUATION

*Ends and means must be evaluated and ranked to make choices.*

Individuals must make choices about their objectives (or ends) and the alternatives (means) they choose to achieve those objectives. To make these choices, it is necessary to value or prioritize ends and means. The process of ranking and the ultimate selection of priorities require criteria to value the alternatives.

*Traditions and institutions are short cuts to making choices about alternatives*

Both ends and means can be ranked on the basis of tradition. Communities often develop traditional solutions to economic problems. In some societies, the solution to the problem of food acquisition may be hunting. Hunting a given specie or species of animals provides a workable solution given technology, natural and built environments. Religion and other social institutions may develop to support these solutions. Use of tradition and institutions (and rules of thumb) to choose ends and means is a way of minimizing the use of analysis and reasoning to make choices; there are a set of ready-made choices. These traditional ends and means are created and evolve as workable solutions to problems. In many cases, traditional solutions may be very effective. However, traditions by their nature persist over time (tend to maintain the status quo) and may become less effective as circumstances change. When natural or built environments change society may still cling to the traditional solutions in the face of declining success. Religion, the vested interests, desire for the old ways and human resistance to change are examples of forces that inhibit the search for new solutions. The ranking of ends and means by tradition may lag behind the changes in knowledge, technology and environmental circumstance. If traditions and existing institutions result in increasingly less successful results, new solutions that are more consistent with individual values and expectations may emerge.

*Institutions and traditions may lag behind changes in technology and the environment.*

### CRITERIA TO EVALUATE ENDS AND MEANS

*An evaluation of right and wrong requires an ethical standard.*

The evaluation and ranking of both ends and means requires the application of ethical principles. At another level, the choices of means to achieve a given end may appear to be based on efficiency.

*Efficiency is a measure of the extent to which an objective is achieved.*

Ethics is the study of the process by which an objective (and/or the means used) is judged "right or wrong." Efficiency is a measure of the extent to which an objective is achieved. Efficiency can only be used to evaluate the means used to achieve a goal or end. Ultimately, efficiency rests on a foundation of ethics. An immoral objective can be achieved "efficiently." Nazi Germany sought "efficient" means to achieve the annihilation of an ethnic group.

Efficiency is based on ethics.

Modern, neoclassical economics is often perceived as a study of efficiency with in the context of a very specific ethical system: "utilitarianism."

## ETHICS

Ethics is the branch of philosophy that studies the nature of "right and wrong" and the criteria used to evaluate the moral questions about ends, choices, means and behavior. Albert Schweitzer is quoted,

Ethics is the study of what is right and what is wrong.

*"In a general sense, ethics is the name we give to our concern for good behavior. We feel an obligation to consider not only our own personal well-being, but also that of others and of human society as a whole."* (quoted in Hill, p 4)

Deontological ethics is based on duty.

Humans tend to rationalize and justify their values, beliefs and behavior; they like to think that what they believe and do is "the right thing to do." For our purposes, there are two broad approaches to judging right and wrong. One approach is to judge the moral quality of an end or action based on duty. This is called deontological ethics. The second approach is to judge the rightness or wrongness with regard to the consequences or outcomes of actions. This approach is referred to as axiological ethics. A third approach is teleological ethics that presumes that each person or community has some unique purpose and that the moral objective should be the attainment of that purpose.

Axiological ethics is based on the value of outcomes.

## DEONTOLOGICAL ETHICS

Deontological ethics is based on "duty" not consequences

In deontological ethics, right and wrong are judged on "duty." Individuals often engage in activities and make choices that are based on a sense of duty. These duties may be based on tradition, expectations or more formal rules. The rightness of behavior is can be seen as compliance with these rules. It should be noted that these rules may be implicit or explicit. The belief that individuals have an obligation to tell the truth, not to kill, to vote or to serve their country are examples of rules that specify duties. In an exchange relationship the seller (or buyer) may have a duty to provide information to the buyer (or seller).

## AXIOLOGICAL OR CONSEQUENTIALIST ETHICS

A consequentialist ethic is based on the outcomes or consequences of a choice or action

Right and wrong (or goodness and badness) of an act (or choice) is based on the value of the outcome of that act (or choice) in axiological ethics. One subset of axiological ethics is consequentialist ethics. In consequentialist ethics, the consequences of actions determines what an individual ought to do and will do. Utilitarianism is a consequentialist ethic that provides the ethical foundation of orthodox microeconomics.

Utilitarianism is an ethical system that judges right and wrong [or good and bad] by the consequences of a choice

Neoclassical economics is based on Utilitarianism, a system of ethics that was formalized by Jeremy Bentham [1748-1832]. Bentham believed that seeking pleasure (happiness, satisfaction, welfare or utility) and avoiding pain determined what individuals do and should do. It is based on the goal of maximizing the welfare or utility of the people "whose interests are of concern." The rightness or wrongness of a choice is based on the outcome or the utility that results from that choice. If the total utility of the group is increased, the choice was "right." If utility is decreased, the choice was unjustified by this ethical standard. In the *Introduction to the*

*Principles of Morals and Legislation* (1789), Bentham makes the following observations.

*Utility determines what we "ought" to do as well as what we do. It is an ethical as well as an operational principle.*

- "Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as what we shall do." (Bentham, *Principles*, Chapter I)
- "By utility is meant that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness or to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered; if that party be the community in general, then the happiness of the community; if a particular individual, then the happiness of that individual." (Ibid.)
- "The interests of the community then is, what? --the sum of the interests of the several members who compose it." (Ibid.)

*The welfare or utility is the sum of individuals' utility. This requires that property rights are exclusive and individuals have independent utility functions*

**Utilitarianism** is a **consequentialist ethic** is based on the outcomes or consequences of a choice or action

The consequentialist ethic of Utilitarianism and neoclassical economics is based on the maximization of each individual's utility. It provides the criteria that are used to judge what we should do and it is the stimulus that directs what we do. The interest or welfare of the community is the sum of the interests of individuals therefore the sum of individuals' utilities is the community or social welfare. Anything that increases the utility or welfare of an individual or society is perceived as ethically correct.

Bentham tried to create a method to calculate the utility or welfare of a community: a "felicific calculus." His approach required that each individual's utilities be independent other individuals utility functions so that they could be added. This process is a form of "reductionism," the overall system is simply the sum of its parts. Bentham considered seven characteristics of each act to calculate the consequences. These included: intensity (of pleasure or pain), the duration, the certainty, propinquity (nearness in place or time), fecundity (capacity to produce similar results), purity and the extent or number of persons affected. Bentham argues the process is to

**Utilitarianism** is a **reductionist approach to ethics.**

*"Sum up all the values of all the pleasures on the one side, and those of all the pains on the other. The balance if it be on the side of pleasure, will give the good tendency of the act upon the whole, with respect to the interests of that individual person; if on the side of pain, the bad tendency of it upon the whole." (Bentham, p 39)*

**Benefit/cost analysis** is based on a **Utilitarian ethic.**

Bentham's utilitarianism is a benefit-cost analysis of pleasure and pain. If the pleasure associated with an act exceeds the pains associated with that act, the act is justified by consequentialist ethics. In economics, finance, accounting and policy analysis, benefit/cost analysis is often used in decision making; if the benefit/cost ratio exceeds one, the project is justified. The difference between Bentham and modern benefit/cost analysis is that Bentham's approach is much broader. In modern benefit/cost analysis, prices of goods are substituted for pleasure and pain. Only market pleasures (utility) and pain (cost) are used in the analysis. Pleasure and pain encompass emotional and non-market values held by individuals.

## EFFICIENCY

*Efficiency is a measure of the extent to which and objective is achieved.*

Bad or immoral objectives can be achieved efficiently.

Means as well as objectives or ends can be evaluated by ethical standards

Efficiency is a measure of the extent to which an objective has been achieved. If an objective is immoral or unethical, efficiency can still be used to evaluate the extent to which the objective is met. Consider the construction of ovens. If an oven is "too small", there is inefficiency in the loss of energy because the door is opened and closed more frequently. If an oven is "too large" it is inefficient in heating too much space. The choice of using a toaster oven or a full size oven is a judgment about their efficiency at different tasks. If the task were to dispose of human bodies during genocide, efficiency would be important in determining the size of the ovens even though the objective is clearly immoral.

It is possible to have objectives that are unethical or wrong and still achieve those objectives with different degrees of efficiency. If an objective were good, moral or ethically correct, then greater efficiency would be desirable. If the objective is immoral or bad, then greater efficiency is not necessarily desirable.

If there are alternative means to achieve an ethical objective, the means may have different levels of efficiency. It is also possible that the different means will be more or less ethical than others. In this case, it may be necessary to judge between an efficient less ethical means and a less efficient more ethical one.

The idea of efficiency was borrowed from physics.

Energy efficiency is often measured as:

$$\% \text{ efficiency} = \frac{\text{useful energy produced}}{\text{total energy used}} \times 100 .$$

Mechanical efficiency is defined as:

$$\% \text{ efficiency} = \frac{\text{output power}}{\text{input power}} \times 100$$

In economics, efficiency can be thought of as a ratio of outputs to inputs. The resources used in production are the inputs and the goods (and services) that are produced are the output. Efficiency is not in and of itself an objective. It is possible to efficiently pursue immoral objectives. It is also possible to pursue ethical ends with unethical means.

Several variations of efficiency are relevant in economics; technical efficiency, allocative or economic efficiency and Pareto efficiency. These concepts of efficiency are straightforward; the difficulty lies in measurement of output, value of outputs, inputs and the value of inputs. In neoclassical microeconomics, utilitarian ethics is the foundation of the concepts of efficiency. Relative prices of inputs and outputs are used as proxies or surrogates for relative values. Again, remember the warning of Oscar Wilde: "A cynic is someone who knows the price of everything and the value of nothing." Price and value are not the same thing, but prices may be used as an approximation of value. Prices may not reflect all the benefits or



costs associated with a choice. They may be distorted in a variety of ways: exchange may not be voluntary; agents may engage in deception, institutions may be inconsistent with technical and environmental circumstances, regulations and other problems.

### TECHNICAL EFFICIENCY

*Technical efficiency is a ratio of outputs to inputs.*

One of the functions of an economic system is to coordinate the production of goods (and services). The technical efficiency of a productive process is the ratio of the outputs (or resources used) to the input (of goods and services). If an economic system produced two goods; Xebecs ( $Q_X$ ) and Yawls ( $Q_Y$ ), the output could be measured as  $Q_X + Q_Y$ . The inputs would be the sum of the resources used (Land (R), labour (L) and capital (K)). Efficiency can be expressed as:

$$\text{Technical efficiency} = \frac{Q_X + Q_Y}{R + L + K} = \frac{\text{output}}{\text{input}}. \quad \text{Equation 5.1}$$

### Production Possibilities Function

*The production possibilities model is a way to show all production alternatives given inputs and technology.*

Efficiency as a market phenomenon can be illustrated using a production possibilities model. (Sometimes called a Production possibilities function, production possibilities curve, production possibility frontier, PPF or transformation function). The PPF is a model that identifies all the production alternatives that are possible for two goods given a set of inputs and a state of technical knowledge. Using the equation from above;

- Output is  $Q_X + Q_Y$  or the quantity of good X (xebecs) plus the quantity of good Y (Yawls), there are alternative quantities of  $Q_X$  and  $Q_Y$  that can be produced. By limiting the outputs to two goods, the model can be constructed in two-dimensional space (on a graph). If three goods are considered, the model requires a three-dimensional space.
- Inputs are: R (natural resources) + L (labour) + K (capital), these resources are finite and given at any point in time.
- The state of technology is the information the agents have about the various ways of producing different quantities of goods X (xebecs, or  $Q_X$ ) and Y (yawls, or  $Q_Y$ ).

If all inputs and the best technology available were allocated to the production of xebecs ( $Q_X$ ), a finite quantity could be produced. In Figure 5.1 this is shown at point G on the X axis when 32 units are produced. Since no inputs are allocated to the production of yawls ( $Q_Y$ ), none are produced. If the agents decided that some yawls were desired, they would have to take some of the inputs from the production of xebecs to use in the production of yawls. Since all the inputs (and best technology) were used to produce 32 xebecs in our example, any reallocation of inputs from the production of xebecs to yawls would require a sacrifice, or the production and availability of fewer units of xebecs. This can be shown as a move from point G ( $Q_X = 32$ ;  $Q_Y = 0$ ) to point F ( $Q_X = 31$ ;  $Q_Y = 10$ ). The production of 10 units of yawls requires the sacrifice of 1 units of xebecs ( $32 - 31 = 1$ ). The inputs that are least effective in producing xebecs would be reallocated to the production of yawls. The sacrifice of xebecs would be minimized. (You would not shift the

best resources to produce xebecs into the production of yawl; that would maximize the sacrifice.)

At point A ( $Q_X = 0$ ;  $Q_Y = 53$ ), all inputs are allocated to the production of yawls so no xebecs are produced. Resources can be reallocated from the production of yawls to produce xebecs; the first five units of xebecs can be produced by sacrificing the output of 3 yawls. Again, the least effective inputs in the production of yawls would be shifted to the production of xebecs. This can be shown as a movement from point A to point B. Sacrifice of one good to produce more of the other is called "opportunity cost." We can locate other output alternatives along the PPF; points A, B, C, D, E, F, G all represents alternative outputs of xebecs and yawls. Any point that lies on the PPF is an output alternative that represents a combination of  $Q_X$  and  $Q_Y$  that can be produced given

Given inputs and a state of technology, the alternative sets of outputs are shown by the production possibilities function. If all inputs are used to produce Yawls (good Y, or  $Q_Y$ ), a maximum of 53 units can be produced. If the inputs are reallocated to produce 5 Xebecs (good X, or  $Q_X$ ), it will be possible to only produce 50 yawls. At the output shown by point C, 16 units of xebecs and 40 units of yawls are produced. If all inputs are used to produce Xebecs ( $Q_X = 32$  at point G), a maximum of 32 units of X can be produced.

Given technology and inputs, all possible output combinations are shown by all points that lie along and inside the line ABCDEFG. A change in inputs or technology will shift the production possibilities frontier.

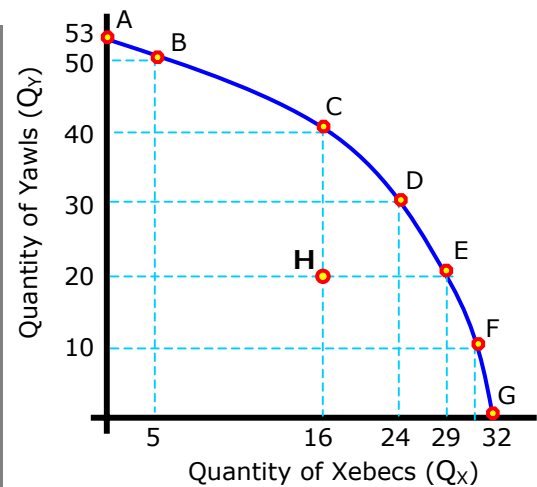


Figure 5.1

inputs and technology. Any output combination inside the PPF is possible but, would not be the maximum amounts of X and Y that could be produced. Output combinations that lie outside the PPF are not attainable or feasible given the inputs and technology available.

The output combination at point H ( $Q_X=16$ ;  $Q_Y=20$ ) is clearly not efficient; more X or Y or both can be produced given the inputs and technology. (Remember, R, L, K and technology, inputs are fixed.) Resources can be reallocated to produce more xebecs (a move to point E), to produce more yawls (point C) or more of both (any point in the triangle HEC).

Any output combination that can be shown as a point on the PPF can be considered as "technically efficient." Any output combination that falls inside the PPF is technically inefficient; there are unused inputs or inputs are not being used for the most appropriate purpose. Clearly there is a problem; there are an infinite number of output combinations (any point on the PPF) which are technically efficient. There are also an infinite number of output combinations that lie inside the PPF that are technically inefficient.

If we expand the model to include the ratio of output to inputs, an

increase in technical efficiency could be the result of:

- an increase in the output of either good while the other good and inputs are held constant
- an increase in both goods while inputs are held constant
- a decrease in the inputs while the output is held constant
- an increase in output and a decrease in inputs.

A movement from a point inside the PPF to a point on the curve is can be regarded as an "increase in efficiency." An improvement in technical knowledge can also be regarded as an "increase in efficiency" since the same output combination could be produced with fewer inputs. The technological improvement can also be envisioned as a shift of the PPF, more output can be produced if the same quantities of inputs are used. This is shown in Figure 5.2.

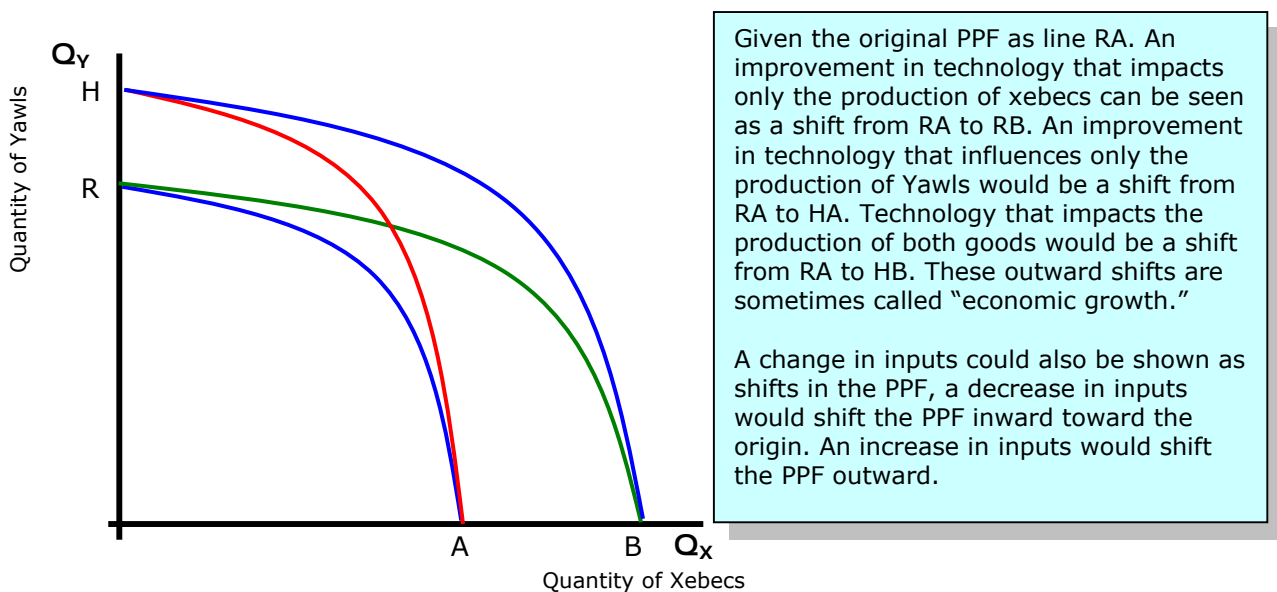


Figure 5.2

There are an infinite number of technically efficient solutions to the allocation problem. However, there is only one allocation that achieves economic or allocative efficiency.

### ALLOCATIVE OR ECONOMIC EFFICIENCY

*Allocative or Economic efficiency is measured by a ratio of the value of a choice to the costs of that choice. Prices of inputs and goods are used as estimates or proxies for their values.*

Since Xebecs (good  $Q_X$ ) and Yawls (good  $Q_Y$ ) are not the same things, it does not make sense to add them together (case of adding apples and oranges,  $Q_X + Q_Y$ ). If the values of the two (or more) goods were known or there were an acceptable proxy for the value, it would be possible to add their values. Remember that one of the tasks of the economic process is to allocate resources to their highest valued use. Technical efficiency is a prerequisite for allocative efficiency.

Economic or allocative efficiency takes into account the value of both the inputs and outputs. Economic efficiency is measured by a ratio of the value of the output to the value of the inputs. Value is a

complex notion and market prices are often used as an indicator of exchange value. (Remember the warning of Oscar Wilde; "A cynic is some one who knows the price of everything and the value of nothing.") Lacking a better proxy for value, price is often used. If the price of good X ( $P_X$ ) and good Y ( $P_Y$ ) are proxies for their value and the wage or price of labour ( $W_L$  or  $P_L$ ) and capital ( $P_K$  or  $\%$ ) were proxies for their values then allocative or economic efficiency might be represented as;

$$\text{Allocative efficiency} = \frac{\text{value of output}}{\text{value of input}} = \frac{P_X Q_X + P_Y Q_Y}{P_L + P_K} \quad \text{Equation 5.2}$$

**Allocative or Economic efficiency** requires that technical efficiency be achieved but a technically efficient solution is not necessarily allocative efficiency.

Allocative efficiency is not only influenced by the quantities of the goods produced and quantities of the inputs used, but the relative values of the inputs and outputs are also important. The benefits or value of an alternative can be expressed as  $P_X Q_X + P_Y Q_Y$ . The costs of the alternative could be expressed as  $P_L L + P_K K$ . Given a set of inputs and technology the solution that achieves allocative efficiency is the highest valued output possible given the inputs and prices.

Using the same production possibilities function as in Figure 5.1, allocative efficiency can be described in Figure 5.3. In this example, the optimal output alternative is that with the highest value. Since value cannot be measured directly, neoclassical economists use market price as an approximation of value. In order for market price to be a reasonable approximation, exchanges must be voluntary exchanges of goods with exclusive property rights. If the price of xebecs were \$4 and the price of yawls were \$2 the "value" of each alternative identified in Figure 5.2 can be calculated. Alternative A is worth \$106, alternative B is worth \$120, C is worth \$144, D is worth \$156, E is also "valued" at

(\$106)

The PPF is determined by the finite quantity of inputs and technology. If the price of xebecs is \$4 ( $P_X = \$4$ ) and the price of yawls is \$2 ( $P_Y = \$2$ ), at point A the "value" of good X is 0 and the "value" of good Y is \$106, the "value" of the output (given prices) is \$106.

At point B the value of the output of good X is \$20 ( $\$4 \times 5$  units X), the value of good Y is \$100 ( $\$2 \times 50$  units Y). The value of output of good X and Y is \$120.

At D and E the value of the output is \$156. Somewhere between alternatives D and E on the PPF the value of the output will reach a maximum. It is where the slope of

the PPF is equal to  $\frac{P_X}{P_Y}$ .

Any alternative inside the PPF will be valued at less than the maximum value.

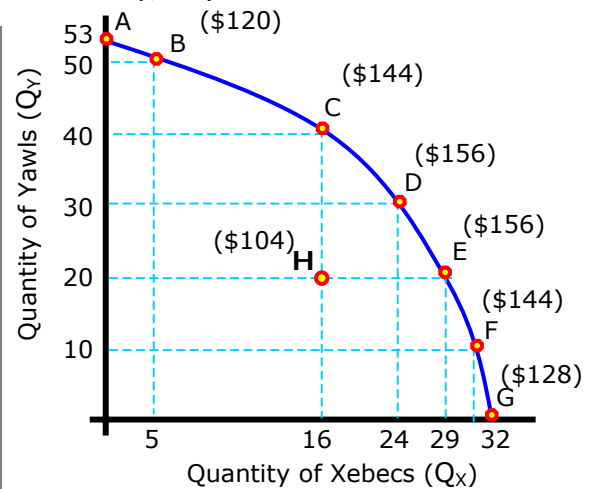
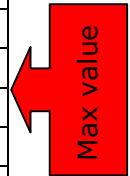


Figure 5.3

\$156. The output at alternative F is worth \$144 and at G is worth \$128. These calculations can be seen in Table 5.3. The highest valued output, based on market prices will lie on the PPF between alternatives C (valued at \$156) and D (also \$156).

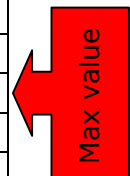
If the prices of the goods are accepted as the value of the goods, the calculation of each alternative are shown in Table 5.1

Table 5.1 Allocative Efficiency and Value of Output							
Alternative	Q <sub>X</sub>	P <sub>X</sub>	Value of output of X (P <sub>X</sub> Q <sub>X</sub> )	Q <sub>Y</sub>	P <sub>Y</sub>	Value of output of Y (P <sub>Y</sub> Q <sub>Y</sub> )	Value of output (P <sub>X</sub> Q <sub>X</sub> + P <sub>Y</sub> Q <sub>Y</sub> )
A	0	\$4.00	\$0.00	53	\$2.00	\$106.00	\$106.00
B	5	\$4.00	\$20.00	50	\$2.00	\$100.00	\$120.00
C	16	\$4.00	\$64.00	40	\$2.00	\$80.00	\$144.00
D	24	\$4.00	\$96.00	30	\$2.00	\$60.00	\$156.00
E	29	\$4.00	\$116.00	20	\$2.00	\$40.00	\$156.00
F	31	\$4.00	\$124.00	10	\$2.00	\$20.00	\$144.00
G	32	\$4.00	\$128.00	0	\$2.00	\$0.00	\$128.00
H	16	\$4.00	\$64.00	20	\$2.00	\$40.00	\$104.00



If the price of good Y should rise to \$3.50 (and the price of X stay at \$4) the alternative with the "highest value" is at point C as shown in Table 5.2.

Table 5.2 Allocative Efficiency and Value of Output							
Alternative	Q <sub>X</sub>	P <sub>X</sub>	Value of output of X (P <sub>X</sub> Q <sub>X</sub> )	Q <sub>Y</sub>	P <sub>Y</sub>	Value of output of Y (P <sub>Y</sub> Q <sub>Y</sub> )	Value of output (P <sub>X</sub> Q <sub>X</sub> + P <sub>Y</sub> Q <sub>Y</sub> )
A	0	\$4.00	\$0.00	53	\$3.50	\$185.50	\$185.50
B	5	\$4.00	\$20.00	50	\$3.50	\$175.00	\$195.00
C	16	\$4.00	\$64.00	40	\$3.50	\$140.00	\$204.00
D	24	\$4.00	\$96.00	30	\$3.50	\$105.00	\$201.00
E	29	\$4.00	\$116.00	20	\$3.50	\$70.00	\$186.00
F	31	\$4.00	\$124.00	10	\$3.50	\$35.00	\$159.00
G	32	\$4.00	\$128.00	0	\$3.50	\$0.00	\$128.00
H	16	\$4.00	\$64.00	20	\$3.50	\$70.00	\$134.00



The alternative that is allocatively or economically efficient is dependent on a set of prices that measures value. We will explore the ability of the market to accurately reflect values of outputs. It is also important to note that there are many things that humans value that cannot be expressed as a market price.



## PARETO EFFICIENCY

At a technical level, economics provides a set of tools to aid in choosing among competing alternatives. In 1906 an Italian, French, Swiss, engineer, sociologist, economist Vilfredo Pareto (1848-1923) introduced the concept of Pareto optimality as a means to undermine the role of utilitarianism in economics. Instead, it became the foundation for what is now called benefit cost analysis and its derivative measures of allocative performance such as rate of return on investment and cost effectiveness.

*Pareto Efficiency is a condition where there are no other alternatives that would improve the welfare or utility of at least one other person without making someone else (or others) "worse off"*

Consider a community of individuals. Your task is to choose an alternative to maximize the welfare or utility of the group. If there were an alternative that would improve the welfare (or increase the utility) of at least one person in the group without making any one worse off (decrease their welfare or utility), you should choose to that alternative. However, if all the alternatives that would make at least one person better off would also make at least one other person worse off, you cannot know if that alternative would improve the wellbeing (utility) of the group.

**Pareto efficiency** is the condition where all alternatives that would increase the welfare of at least one person without decreasing the welfare of others have been exhausted. There is nothing that can be done to improve the welfare of anyone without making someone else worse off. In the PPF model (Figure 5.4), Pareto efficiency exists at any point on the PPF once you have attained that point.

Given the PPF, point H is not Pareto efficient: more X (Y) can be produced with no sacrifice of good Y (X). A move to any output combination identified in the triangle HEC is a Pareto improvement; some one (or everyone) is better off and no one is any worse off; this area is Pareto Safe. A move to any point in the Pareto Safe area is a Pareto improvement or is Pareto superior.

Once on the PPF (point D for example) any change to improve the welfare of an individual (or group) who prefers good Y, would make those who prefer good X "worse off." To increase the quantity of Y, from point D to point C, would require that less X would be produced.

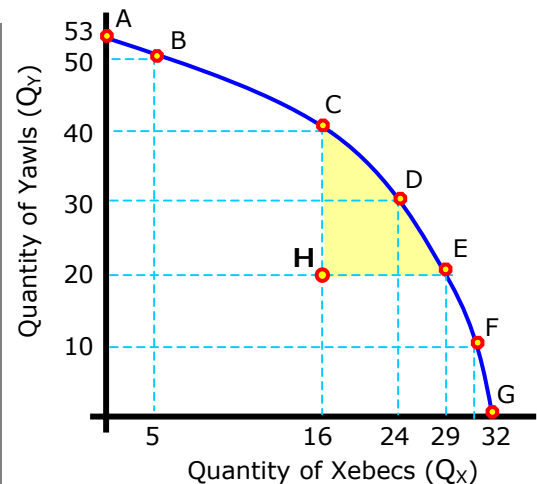


Figure 5.4

**Pareto efficiency** can be used as a criterion to decide whether to choose an alternative. If a choice makes some one better off and no one any worse off, it is a choice that will increase the achievement of the goal or end of maximizing the utility or welfare of the group. This can be

*Pareto Safe is the set of alternatives where someone benefits and no one is any worse off.*

"Pareto Safe," i.e. the output can be altered so someone is "better off" and no one is worse off. Any change that increases the welfare of one person or persons that does not reduce the welfare of

*Pareto improvement is an act that increases the welfare of at least one person and no one is any worse off*

*Pareto potential is an act that increases the welfare of at least one person and no one is any worse off*

*This is the foundation of benefit/cost analysis. Rate of return on investment (ROI is a ratio of the return [benefit] to investment [cost]) is another variation of this idea.*

another is a "**Pareto improvement**" or Pareto Safe and will clearly increase the welfare or utility of the community. Any alternative that results in a greater utility of at least one person and no decrease in the utility of anyone can be referred to as "**Pareto superior.**"

The problem is that this criterion tends to support the status quo. Almost all choices that increase the utility of an individual or group will make others worse off. Since a Pareto efficiency criterion is very restrictive, **Pareto Potential** is may be used. This is the same as the benefit/cost criterion. Pareto potential holds that if a choice or alternative makes one person or group better off but others are worse off, if the "winners" or those who gain can hypothetically reimburse those who are "losers" (or are worse off) and still be better off, the alternative will increase the utility of the group. In a more simplistic way, the benefits associated with the choice exceed the costs.

## **PARETO POTENTIAL, BENEFIT/COST AND MARGINAL ANALYSIS**

The Pareto potential criterion for decision making is the foundation of analysis that use benefit/cost, cost effectiveness and rate of return for decision making.

### **Marginal Analysis**

The process of making decisions is like the proverb "The longest journey begins with the first step." Or like the question posed by Albert Camus (1913-1960) about the individual deciding each day about suicide or continuing life. The individual taking a journey must make the decision about taking the first step before they decide on the second. In Camus' case, one must decide not to commit suicide before you tackle the rest of the day.

Decisions in economics are always made at the "margin." A decision to change one variable will cause a change in some other related variable. An act or choice will have benefits and costs associated with that act. An increase in the production of xebecs may require a reduction in the production of Yawls; the benefit is more xebecs, the cost is fewer yawls.

A change in the price of a good will change the quantity sold, a change in the quantity sold will change the total revenue collected. The change in total revenue caused by a change in units sold is called marginal revenue. The marginal concept is applied to a wide variety of relationships. In principles of economics, these are usually described as a "one unit" change in the variables. The Greek letter delta,  $\Delta$  is used to identify a change calculated by subtraction. In other cases, a derivative (d) or partial derivative ( $\partial$ ) will be used to denote a change that approaches 0.

The use of marginal is applied to many economic relationships. In fact, the early period of the development of microeconomics (mid to late 19<sup>th</sup> century) was called the "*marginalist revolution.*" Below are some definitions of several useful marginal relationships.

*Marginal analysis and the rate of change in a dependent variable caused by a change in an independent variable*

*Marginal cost as the change in cost attributed to a change in output*

### Marginal Cost (MC)

MC is defined as the change in Total Cost (TC) or variable cost (VC) caused by a one unit change in the quantity produced, output (Q). MC represents opportunity cost.

$$MC = \frac{\Delta TC}{\Delta Q} = \frac{\Delta VC}{\Delta Q}$$

Equation 5.3

*Marginal benefit as the change in total benefits attributed to a change in quantity*

### Marginal Benefit (MB)

MB is defined as the change in total benefit (TB) caused by a one unit change in quantity consumed (Q).

$$MB = \frac{\Delta TB}{\Delta Q}$$

Equation 5.4

*Marginal Utility is the change in total utility caused by a change in consumption*

### Marginal Utility (MU)

MU is the change in utility caused by a change in quantity consumed (Q)

$$MU = \frac{\Delta TU}{\Delta Q}$$

Equation 5.5

## Choice and Marginal Analysis

If Pareto Potential or the Benefit/Cost criteria are to be used for decision-making, the rule is quite simple; if the benefits associated with a choice (or alternative) exceed the costs associated with that choice, then the choice will increase net benefits. If the costs of an alternative exceed the benefits of that alternative, then that alternative is not a good choice.

## EXAMPLE BENEFIT/COST USING MARGINAL ANALYSIS

Using the example PPF presented in Figure 5.5 (Same PPF as in 5.1, 5.3, 5.4 )

Original allocation is at H ( $Q_X=16, Q_Y=20$ );  
 $P_X = \$4$  and  $P_Y = \$3.50$

Alternative E (C, D or any choice in triangle HEC) has no MC, the output of X or Y or both X and Y increases so the MB is positive. The B/C ratio of any alternative is greater than one, the  $MB > MC$ .

If production were at point D ( $Q_X=24, Q_Y=30$ ), a choice of alternative C would result in  $Q_X=16, Q_Y=40$ , 8 units of X are traded for 10 units of Y. Six fewer units of X at \$4 each is a MC of \$24. The MB is 10 additional units of Y at \$3.50 each or \$35. The  $MB > MC$ , The B/C ratio  $> 1$ , the net benefits will increase by \$11 by selecting alternative C over D. Alternative C is worth

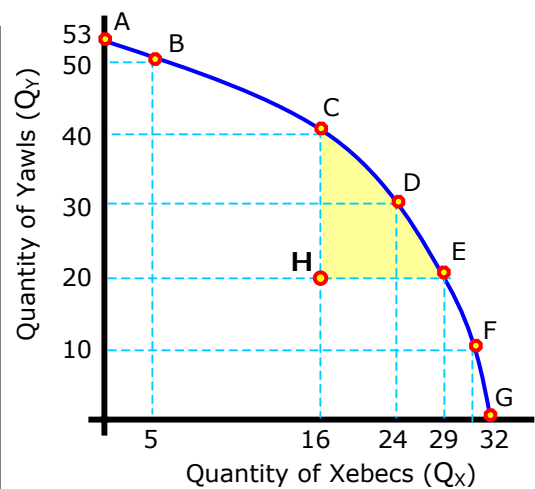


Figure 5.5

Consider the PPF in Figure 5.5; Xebecs are priced at \$4 ( $P_X = \$4$ ) and yawls are \$3.50 ( $P_Y = \$3.50$ ). If the initial output were where

$Q_x = 16$  and  $Q_y = 20$ , which is represented at point H. At these prices, the output of xebecs is "worth" \$64 and yawls are worth \$70. The "value" of the output alternative identified at point H is \$134.

### Ranking of Alternative H with Alternative E

If alternative E were chosen over alternative H, 13 additional units of xebecs would be produced ( $29 - 16 = 13$ ). This is the marginal benefit (MB) of the choice of reallocating resources from alternative H to E. If xebecs were valued at \$4 each, that would be a MB of \$52 in monetary terms. This can be viewed as a move from row H to row E in Table 5.3

This reallocation of resources would not reduce the output of yawls, so the marginal cost of the reallocation is 0. Since the  $MB > MC$ , the reallocation or inputs to move the output alternative from H to E would be an improvement in the achievement of the objective (producing the highest valued output). The output of xebecs and yawls at point E is \$186 ( $134 + 52$ ; the value of the output at H added to the MB of reallocation of inputs)

The relative prices of xebecs and yawls are irrelevant since the marginal cost (MC) is zero. Any increased production of xebecs at any positive price would be a Pareto improvement. A reallocation to point D, C or any output combination that lies in the triangle HEC would be a Pareto improvement (or Pareto superior to the allocation at point H).

Table 5.3 Allocative Efficiency and Value of Output							
Alternative	$Q_x$	$P_x$	Value of output of X ( $P_x Q_x$ )	$Q_y$	$P_y$	Value of output of Y ( $P_y Q_y$ )	Value of output ( $P_x Q_x + P_y Q_y$ )
A	0	\$4.00	\$0.00	53	\$3.50	\$185.50	\$185.50
B	5	\$4.00	\$20.00	50	\$3.50	\$175.00	\$195.00
C	16	\$4.00	\$64.00	40	\$3.50	\$140.00	\$204.00
D	24	\$4.00	\$96.00	30	\$3.50	\$105.00	\$201.00
E	29	\$4.00	\$116.00	20	\$3.50	\$70.00	\$186.00
F	31	\$4.00	\$124.00	10	\$3.50	\$35.00	\$159.00
G	32	\$4.00	\$128.00	0	\$3.50	\$0.00	\$128.00
H	16	\$4.00	\$64.00	10	\$3.50	\$70.00	\$134.00

### Ranking of Alternative E with Alternative F

If the current output were at point E ( $Q_x = 29$  and  $Q_y = 20$ ), and alternative F ( $Q_x = 31$  and  $Q_y = 10$ ) is considered. The marginal benefit (the benefit associated with reallocating resources to point F) would be an additional 3 units of xebecs ( $31 - 29 = 3$ ). At \$4 each

this is a MB of \$12 in monetary terms. However, the reallocation of resources from H to F requires a sacrifice or MC of 10 units of yawls ( $20-10=10$ ). At a price of \$3.50 the MC is \$35 in monetary value. The MC = 35; MB = 12. A reallocation of inputs to move from point E to point F would be trading \$12 for \$35; not a good idea.

### Ranking of Alternative E and Alternative D

A reallocation of resources from alternative E to alternative D would result in an increased output of 10 yawls. At a price of \$3.50, the MB is \$35. This reallocation reduces the output of xebecs from 29 to 24, a marginal cost of 5 units of xebecs. At \$4 each this is a MC of \$20. Since the MB > MC ( $35 > 20$ ), the reallocation of inputs from the production of the output at point E to point B is justified by our benefit/cost criterion. Notice that the net gain to society is \$15, so point D is "worth" \$15 more than the output at point E. D is "valued" at \$201 and E is "valued" at \$186 ( $186 + 15 = 201$ ).

Can a reallocation of inputs from the production of the output at point D to point C be justified using the Pareto potential criterion?

### Complications

This analysis is simplified. There are a number of questions.

When the "winners" gain more than the losers, the reallocation is justified. The winners can hypothetically reimburse the losers but the reimbursement may never occur. The alternative at point C is preferable to that at point D. The net marginal benefit of a reallocation from D to C is \$3. The individuals who have a preference for xebecs are "worse off" (losers) Those who prefer yawls are "better off" (winners).

Can the redistribution of benefits from one group to another be justified on ethical grounds? Consider a reallocation of water from storage behind a dam to a free flowing river. Irrigators and power users may incur significant costs while the fishermen and white water rafters gain. A tax cut clearly benefits some individuals but may impose costs on others. There may be no mechanism by which the losers can be compensated by the winners.

Another issue is that if the move from D to C involves fewer xebecs and more yawls. The increase in yawls might cause the price for yawls to fall while the decrease in xebecs could feasibly result in a price increase for xebecs.

If the winners of an action can hypothetically compensate the losers and still be better off, the benefits exceed the cost of the action. The benefit/cost ratio is greater than one and is justified by the Pareto Potential criterion. There are still ethical questions involved.

### SOME PRACTICAL ETHICS

The ideas of justice and ethics are often considered a matters of individual preference and therefore impossible to evaluate. What I consider just, someone else may perceive as unjust. It has been a perplexing problem that has been addressed by philosophers over the ages. Plato and Aristotle both were concerned with justice. Adam Smith saw justice as a necessary



requirement for a civil society. Ethics is important. One of the approaches that is applicable in economics is the "veil of ignorance" as described by John Rawls.

*Rawls' veil of ignorance holds that whatever your circumstances you perceive it as "fair."*

*"It is assumed, then, that the parties do not know certain kinds of particular facts. First of all, no one knows his place in society, his class position or social status; nor does he know his fortune in the distribution of natural assets and abilities, his intelligence and strength, and the like. Nor, again, does anyone know his conception of the good, the particulars of his rational plan of life, or even the special features of his psychology such as his aversion to risk or liability to optimism or pessimism. More than this, I assume that the parties do not know the particular circumstances of their own society. That is, they do not know its economic or political situation, or the level of civilization and culture it has been able to achieve, the persons in the original position have no information as to which generation they belong. These broader restrictions on knowledge are appropriate in part because questions of social justice arise between generations as well as within them, for example, the question of the appropriate rate of capital saving and of the conservation of natural resources and the environment of nature. There is also, theoretically anyway, the question of a reasonable genetic policy. In these cases too, in order to carry through the idea of the original position, the parties must not know the contingencies that set them in opposition. They must choose principles the consequences of which they are prepared to live with whatever generation they turn out to belong to." (Rawls, P 137)*

Individuals must be prepared to be placed in a society and no matter the circumstances, say "That's fair."

### **EFFICIENCY AND ETHICS (AGAIN!)**

*There are ethical implications associated with decisions made with efficiency criteria.*

If the objective is to maximize the welfare or utility of a group, an alternative with a benefit/cost ratio that exceeds 1 will increase the utility of that group. The winners can hypothetically reimburse the losers and still be better off. If the hypothetical reimbursement is not actually made, the distribution of wealth, income and the level of goods that each person can potentially consume will be altered. Some people are better off and other people are worse off. This change in relative welfare of individuals is an ethical question, not one of efficiency, although it often masquerades as a question of efficiency.

Consider a case of a society. Under the present conditions, there is a distribution of income and wealth that results in different individuals consuming different quantities of goods. These individuals probably have different preferences and derive different levels of utilities from the given good. A tax cut will make some people better off; they pay fewer taxes. Since the government has less revenue, they must cut some programs; grants for low income students to attend college, road construction, etc. Students, employees at universities, movie theaters near the university, trucking companies, and consumers who must pay higher prices because it costs more to transport goods may be worse off. Taxpayers with lower taxes, firms where these taxpayers spend their increased incomes and workers who are hired by the firms are better off than before. If the benefits exceed the costs, the winners could hypothetically reimburse the

losers. If the reimbursement is not actually made (which it probably will not), there is an ethical question about taking from one group to benefit another.

# Alternative Microeconomics

## Six Chapter

### The Rules of the Game and Economic Systems

## I INTRODUCTION TO THE RULES OF THE GAME

*The nature and structure of the "rules of the game" help to determine the characteristics of a society's economic system.*

**W**hether a society emphasizes the use of exchange, reciprocity or eminent domain to allocate resources, "Any economic system requires a set of rules, an ideology to justify them, and a conscience in the individual which makes him strive to carry them out." (Robinson, p 13) This set of rules includes informal institutions and values held by individuals as well as formal law. The structure of the rules of the games shapes the society's economic system. Neoclassical microeconomics does not often explicitly consider the nature of these rules and their relation to economic behavior.

### ECONOMIC SYSTEMS

**S**ocieties that fail to meet minimum subsistence requirements for its members become relics of the past. Ideally, an economy will produce more than necessary for subsistence and apply the additional output to improving the lives of the members of society through development and/or economic growth. The ideas of "progress," economic development and economic growth came with the development of the commercial world that replaced the feudal society of the medieval world.

*An economic system is a matrix of institutions, agents, organizations and society..*

An economic system consists of a matrix of social institutions (law, political institutions, religion, etc), agents (individuals or actors), organizations (corporations, unions, charitable org, not-for-profit firms, etc) and society. The principles, beliefs and values held by individuals are included in the structure of society. The function of an economic system is to coordinate the activities of agents in the processes of provisioning and allocation. Nonmaterial characteristics of life (social stability, low crime rates, a sense of community, etc) are related to the economic processes and should be included.

*Robert Heilbroner identifies economic systems as:*  
1) **Traditional**,  
2) **Command**  
3) **Market**  
*Mixed economies are a mixture of the three*

Robert Heilbroner identifies three basic types of economic systems. These are classified as markets, command, and tradition. In practice, most economies are a mixture that includes elements of all three. However, the economic system is usually classified by the dominant approach. Markets and command exist in traditional economies. Tradition and markets exist in command economies. Western industrial societies categorized as "market-oriented" economies rely primarily on exchange, but contain elements of tradition and command. In market economies tradition is important to such decisions regarding values, expectations about behavior (trust, loyalty, etc.), fashion, preferences about housing, choices about occupations and geographic preferences. Command is also found in market economies as regulations and laws regarding the allocation of resources and goods.

## TRADITIONAL ECONOMIES

Traditional economies tend to be based on kinship and reciprocity. They tend to be static and maintain the *status quo*.

Traditional economic systems are based the repeated use of solutions that have worked in the past. Solutions to problems in the processes of production, distribution and consumption are embedded in the customs, mores and cultural patterns of social life. These solutions have been established through trial and error; those activities that result in adequate production and an acceptable distribution are retained and used often without question. Agents in traditional societies may engage in exchange transaction but these are peripheral to the provisioning and allocation problems.

Traditional economies are often subsistence economies.

The traditional economic system tends to be found in non-industrial societies that are engaged in hunting, gathering, pastoral, or basic agriculture. Often these are subsistence economies; there is little or no growth or progress. The aboriginal culture in Australia is an example of an economy that has flourished for thousands of years (40,000 years by some estimates) as a traditional economy.

Traditional economies depend on institutions that have worked in the past.

Traditional economies tend to depend upon a deontological ethic. Duties to other members of the family, tribe or clan and "reciprocity" are the primary allocative mechanisms. The forms of production that individuals engage in are based on the processes that have worked in the past. Social institutions, such as religion, may evolve to reinforce the traditional ways.

Story telling and myths are important ways to communicate expectations about behavior.

These societies must communicate behavioral expectations to each new generation. The most important form of knowledge may be contained in stories and myths. Mythology and story telling are important aspects of the creation and communication of cultural values. *Webster's Encyclopedic Unabridged Dictionary of the English Language* gives one of the definitions of myth as:

*"an unproved collective belief that is accepted uncritically and is used to justify a social institution."*

Keen and Valley-Fox describe myths as:

*"... an intricate set of interlocking stories, rituals, rites and customs that inform and give the pivotal sense of meaning and direction to a person, family, community or culture."* (Keen, p xii)

Mythology is one of the processes by which cultural values and expectations about behavior are transmitted from generation to generation. Even in modern societies, stories are fundamental to the process of creating, and perpetuating culture in societies.

Reciprocity is another important element of traditional economies.

Reciprocity is often a key element in traditional economies. Remember that reciprocity is based on duty and involves obligatory gift giving; I do you a favor and both you and I (and other members of society) expect that you will return some unspecified favor at some unspecified time in the future. It requires a sense of duty, social values and a community to enforce reciprocation. Social institutions give structure to the values, duties and expectations about economic behavior.

In many societies, reciprocity becomes an important element of the social process. In a ranching community Rancher Smith goes to the other ranchers and says; "I need some help branding my calves next Tuesday, I'd appreciate some help." On Tuesday, the ranchers show up at Rancher Smith's place and help with the task. If Rancher Jones does not come to help, it may be for a good reason. However, if he or she is perceived as shirking his or her duty, it may be difficult for Jones to get neighbors to help with future tasks. Similarly,

Reciprocity not only is an allocative mechanism but an element of the society.

if everyone helps Rancher Smith but then at some point in the future Rancher Smith does not reciprocate by helping someone else fix his or her fence, then Rancher Smith may find it difficult to get anyone to help in the future. There is a community that expects that the other members will help when needed and will reciprocate in the future. The community must communicate the willingness of its members to participate in mutual aid and to sanction members who do not fulfill their obligatory duties.

Notice that the substance of the event is different if Rancher A says; "I'll pay you \$10 per hour to help me brand my calves." Shifting the process from reciprocity to a market exchange significantly alters the relationships and the nature of the event. In the case of reciprocity, there is a sense of community. The relationship between the members of the community may be of value in and of itself. Blood and organ donations are examples. Moving a good or activity into a market transaction may significantly alter its meaning or value. A market exchange can take place between anonymous individuals.

Complex societies may find traditions less useful as an allocative mechanism.

As communities become larger, more complex and social relationships are altered; tradition may be less useful as an allocative mechanism. It is more difficult for the members of the community to communicate the extent to which the members fulfill their duties. Social pressure to enforce obligations of reciprocity and duty may become less effective since each person has more relationships that may be more valued.

Traditional economies are less capable of adapting to environmental and technical change.

Another weakness of a traditional economy is that it does not adapt quickly to changes in technology or the environment. So long as there are no (or few) changes in the environment, technology or external forces, the traditional economy is stable or static. However, if there are sudden changes in the environment, the traditional solutions may no longer suffice. Droughts, desertification, over hunting specific animals are examples of events that traditional societies may not be able to deal with. Native Americans in the plains developed societies that were dependent upon the bison. Their economies, social structure, politics and religions were based on bison. With the advent of Europeans, firearms, railroads and a demand for hides, the bison were hunted almost to extinction. Many of the native societies found it difficult to adapt to a system without bison. Whaling, fishing, hunting, agriculture based on single (or limited) crops are other examples of the difficulty that traditionally based economies have in adapting to change.

## COMMAND

Command economies rely on eminent domain.

Eminent domain is the primary allocative mechanism used in a command economy. An economic system based on command requires an agent or organization with the authority to make allocation decisions. This authority may be based on religion, military strength, political position, birth or wealth.

It is usually necessary that there be an authority with power to redistribute resources and goods.

Command economies often rely on traditions as part of the allocative process. This traditional process is subordinated to eminent domain. The Roman society is an example of a command economy. Fascist Germany, the former Soviet Union and Maoist China are other examples of attempts to use command. These economies are often thought of as "planned economies." During World War II many allied countries relied on command systems to coordinate the war effort.

In both traditional and market economies command may play a significant role. In modern, market economies there are regulations and laws that mandate particular actions, behavior, production techniques and/or characteristics of

products.

Multinational corporations often behave as planned or administrative command economies.

A command economy requires an overall objective or goal for the governing body; individuals' goals become subordinate. Since command economies are often represented by nation states, these can be thought of as national goals. Some organizations act as small communities with organizational goals and use command and eminent domain as the primary allocative mechanism. During the medieval era, the Church and the secular state both operated as command economies that were interrelated. In the modern industrial world, the multinational corporation uses a command system internally; its decisions are made administratively. Goals may include;

Individual objective must be coordinated with the system objective.

- economic growth,
- full employment,
- industrialization,
- military strength,
- conquest,
- acquisition of specie (gold/ silver),
- land,
- political control
- religious conversions
- control over markets where they sell,
- control of resources,
- or any thing else that the governing authority chooses.

Individual objective must be coordinated with the system objective.

Goals of command economies may be chosen in a variety of ways.

One of the important questions in a command economy how the overall objective is selected. It may be an administrative choice. The authority may simply select the objective. If this is the case, the intentions of the authority become crucial; are they benevolent or not? In some cases, it may be possible to have the objectives of the members of the community reflected in the overall objective. Market socialism in the former Yugoslavia is an example.

The task of the command system is to coordinate individual behavior with the national or organizational goal. A command system relies on administrative decisions that flow from the authority down. This requires that the decisions be communicated to the individuals and enforced. This may require a complex system of rules and institutions to communicate and create the appropriate incentives to act on that information.

The authority that is responsible for the administrative decisions that are imposed on the members of the organization or state, must have information about the goals, the members of the community, the availability of inputs, all potential technologies, all alternative outputs and potential distribution patterns. This is an enormous information requirement that was debated in the "socialist calculation debate."

Command economies can shift objectives quickly concentrate on the achievement of goals.

One of the strengths of a command system is that it can alter its objectives quickly. In a wartime economy, it may be useful to be able to command the allocation of resources into the development and production of munitions and military hardware.

The weakness of a command system is that the authority would need an enormous amount of information about individuals' preferences and the production requirements of all goods and services. Command systems may also



be flawed by the nature of the authority that may or may not be benevolent. Another major problem of a command system is the loss of individual autonomy.

## MARKET

Market economies are based on exchange or contracts among individual agents on a *quid pro quo* basis.

Market based economies depend on individual exchange contracts that occur in the context of a social contract. An exchange contract is based on *quid pro quo*, "I will give you this if you give me that!" The nature of the goods (include money) to be exchanged as well as the conditions and time is clearly specified. It is necessary that both parties engage in the contract or exchange voluntarily.

If the exchange is voluntary, the presumption is that a person would engage in the exchange if and only if they are better off or no worse off after the exchange. Therefore, a voluntary exchange results in Pareto improvements and ultimately a Pareto superior solution to the allocation problem.

Adaptability is an advantage of market systems and is related to the availability of information and incentives of exchange.

Neoclassical microeconomics uses "supply and demand" as a representation of a market. The demand function represents the behavioral patterns of the buyers (both actual and potential) of a specific good. The supply function represents the behavior of actual and potential sellers (producers) of a good.

The strength of market system is that is capable of quickly adapting to changes in preferences and technology. The information required by any one agent is minimal. The weakness is that when exchanges are not voluntary or property rights are attenuated (weakened), outcomes may be less than optimal.

Neoclassical microeconomics tends to be a study of contracting and voluntary exchanges between individuals. The context in which these contracts occur is usually "the market." The structure of the markets is perceived to influence the behavior or the individuals who participate in voluntary exchanges or contracts.

Market structures influence the behavior of both buyers and sellers in a market.

In its most ideal form, the market is characterized as "pure competition." In pure competition, there are a large number of buyers and sellers, none of which can influence the price or the behavior of others; they can only contract to exchange goods (and money). The purely competitive market is characterized by goods that are homogeneous; i.e. buyers perceive these goods as identical or perfect substitutes. Buyers have no preference for one seller's good over another's. The exchange or contract is made on the basis of price. In this way, sellers compete for buyers by lowering the price to the minimum they will accept. Buyers compete to purchase by offering the highest price they are willing to pay. In a market such as this the equilibrium price; the price at which the last (or marginal) unit is exchanged will optimize the welfare of the buyers and sellers. In the least desirable market form, a seller has a monopoly where there is only one seller of a good. The effects of market structure on the behavior of buyers and sellers are an important topic in neoclassical microeconomics that is covered in Part II of this text.

The social and legal context is often implicit in economic analysis.

Social infrastructure is important to the operation of markets.

The social context of economic behavior is often not made explicit. People perceive that individual exchange in competitive markets is the only consideration. This leads to the perception that the government and community have little or no role in economic activity. Many *laissez faire* advocates fail to recognize that economic behavior is a part of social behavior. Friedrich A. Hayek (1899-1992) is a well-known advocate of the market system. He identifies the social infrastructure that must exist to support individual market exchange. The following quotes are long because they are important and must

be considered in the context of Hayek's ideas;

Property rights and rights to contract are fundamental to market economies.

*While it would be an exaggeration, it would not be altogether untrue to say that the interpretation of the fundamental principle of liberalism as absence of state activity rather than as a policy which deliberately adopts competition, the market, and prices as its ordering principle and uses the legal framework enforced by the state in order to make competition as effective and beneficial as possible-and to supplement it where, and only where, it cannot be made effective-is as much responsible for the decline of competition as the active support which governments have given directly and indirectly to the growth of monopoly. It is the first general thesis which we shall have to consider that competition can be made more effective and more beneficent by certain activities of government than it would be without them. With regard to some of these activities this has never been denied, although people speak sometimes as if they had forgotten about them. That a functioning market presupposes not only prevention of violence and fraud but the protection of certain rights, such as property, and the enforcement of contracts, is always taken for granted. Where the traditional discussion becomes so unsatisfactory is where it is suggested that, with the recognition of the principles of private property and freedom of contract, which indeed every liberal must recognize, all the issues were settled, as if the law of property and contract were given once and for all in its final and most appropriate form, i.e., in the form which will make the market economy work at its best. It is only after we have agreed on these principles that the real problems begin. (Hayek, pp 110-111)*

Property and contract law must evolve as circumstances change.

Hayek continues;

*If I am not mistaken, the main headings under which the measures required to insure an effective competitive order ought to be considered are the law of property and contract, of corporations and associations, including, in particular, trade-unions, the problems of how to deal with those monopolies or quasi-monopolistic positions which would remain in a otherwise sensibly drawn-up framework, the problems of taxation, and the problems of international trade, particularly, in our time, of the relations between free and planned economies.*

The meaning of Property and contract law are complex. The content and structure are important and should not be ignored.

*As far as the great field of the law of property and contract are concerned, we must, as I have already emphasized, above all be aware of the error that the formulas of "private property" and "freedom of contract" solve our problems. They are not adequate answers because their meaning is ambiguous. Our problems begin when we ask what ought to be the contents of property rights, what contracts should be enforceable, and how contracts should be interpreted or, rather, what standard forms of contract should be read into the informal agreements of everyday transactions. (Hayek, pp 112-113)*

Adam Smith also saw a positive role for government. As implied in the quotes from Hayek, it is the content of the laws of property and contract that is crucial. It is important to identify the role of the state in structuring the allocative process that society depends upon.

## ROLE OF GOVERNMENT

There are different ideological approaches to questions about the proper role of government in an economic system.

One of the major controversies is the proper role of government (and the use of command) within a market based economic system. Many of the issues in this controversy are ideological in nature and result in the existence of different "schools of economic thought." The Chicago School and the Austrian School of economic thought argue that the role of government in the economy should be minimized. (Hayek taught at the University of Chicago and was an Austrian economist.) The American or "Old" Institutionalists and much of Neoclassical microeconomics (in the Cambridge tradition) sees a more positive or active role for government in many areas.

Many pro market advocates perceive that there is a minimal role for government in an economic system.

The French Physiocrats [led by Francois Quesnay, 1694-1774] advocated a minimal role for government. Jacques Claude Vincent de Gournay [1712-1759] is usually credited with the phrase *laissez faire, laissez-passer!* Some advocates of an extreme *laissez faire* doctrine argue that there is no or almost no role for government. Most argue for limited government action in the economy. Others, such as Adam Smith and F. A Hayek (above) see a positive role for social institutions and government participation. Adam Smith [1723-1790], who was familiar with the work of the Physiocrats, advocated a social system based on ethics, markets and jurisprudence with a minimal role for government.

There are many arguments about the proper role of government. Some of the arguments are based on ideology while other disagreements arise on pragmatic grounds. Here are several possible roles for government:

Government may define and enforce property rights.

### Property Rights

One of the functions of government is to define and protect property rights. John Locke [1632-1704] argues the social contract is for the purpose of protecting property rights. Such diverse writers as Adam Smith [1723-1790] and Karl Marx [1818-1883] argue that this is one of the primary functions of governments.

Property rights may be defined and enforced through informal means.

Property rights may also be defined and enforced by informal rules such as social institutions, civility, tradition, custom, mores and systems of ethics.

Domestic justice is an important role for government.

### Domestic Justice

Adam Smith included the enforcement of property rights under the establishment of domestic justice when he defined the role of government. Domestic justice is broader and includes "*protecting, as far as possible, every member of society from the injustice or oppression of every member of it. . .*" (Smith, *Wealth of Nations*, p 669)

Most writers argue that national defense is a function of government.

### National Defense

While leaders and policy makers may argue about the level and nature of national defense, there are few who would argue that there is no reason for the state to provide protection from attack by other nations. The debate takes the form of the nature and extent of that national defense. National defense is one of the best examples of a public or collective good. In the case of a public good, it is impossible to exclude a person from the consumption of the good and the marginal cost of an additional user is zero. In these conditions, the state often provides the good.

## Provision of collective or public goods

Public goods are often provided by government.

Public goods are those goods whose property rights are not exclusive; it is not possible to exclude anyone from their use and the additional cost (marginal cost) of an additional user is zero. National defense is a case of a public good. If a baby is born in the country, it is not necessary to increase national defense. Clean air is another example of a public good.

Other collective goods and quasi-public goods are provided by governments at many levels.

Adam Smith included other public goods in this category. He referred to them as public institutions and public works. In the terminology of modern economics, these goods are often called quasi-public goods; the marginal cost of additional uses may be zero, but it is possible to exclude users. Roads, bridges, canals, navigational devices and the like could be paid for by tolls or financed by government.

Smith includes education in this category of activities. He discusses specifically education of youth. He also says;

Smith's warning about the excesses of specialization.

*"In the progress of the division of labour, the employment of the far greater part of those who live by labour, that is, of the great body of the people, comes to be confined to a few very simple operations, frequently one or two/ But the understandings of the greater part of men [sic] are necessarily formed by their ordinary employments. The man whose whole life is spent in performing a few simple operations, of which, the effects too are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become."* (Smith, Wealth of Nations, p 734)

Smith continues on the next page;

*"But in every improved and civilized society this is the state into which the labouring poor, that is the great body of the people, must necessarily fall, unless the government takes some pains to prevent it."*

The role of government in the provision of education and arts for individuals in society is controversial. Currently, there are a variety of debates ranging from voucher systems to the appropriate level of funding for English as a second language and special education.

## Promote Competition

Governments may try to balance the role of competition in society.

The models of purely competitive markets show that the behavior of the individual sellers (and buyers) will be consistent with social welfare in the long run. When there are impediments to competition, the prices are distorted and incorrect signals encourage behavior that is less than socially optimal. As a result, governments often try to regulate the behavior or to promote competition. Most industrial nations have laws that make monopolization of markets, price fixing, collusion, tying contracts and other anti-competitive practices illegal. The Sherman Antitrust Act of 1890, the Clayton Act of 1914 and the Robinson-Patman Act of 1936 are examples.

Information is important to any allocative system. It is necessary for

One element in promoting competition is to prevent falsification of information, fraud, deceit, etc.

agents in a market exchange to have information to value goods and negotiate contracts. Most societies see that one of the roles of government (if not a moral system) is to prevent fraud, deceit, and other methods of distorting information provided by buyers and sellers. The Securities Exchange Commission attempts to regulate financial information provided to the financial markets, insider trading is illegal, there are truth in advertising laws and agencies that regulate the content and quality of goods (food, drugs, etc.). The development of policy and law in these areas is often controversial and vested interests attempt to manipulate the regulations in their favor. (Remember George Stigler's capture theory of regulation.)

Most individuals believe that there are some members of society who should be cared for.

### Safety Net

Most civilized societies try to provide a safety net for individuals who are unable to care for themselves. There are many disagreements about the criteria to be used to decide which people should be included in this group.

## II PROPERTY RIGHTS

The concept of property rights is essential to any economic system. The analysis of property rights is complicated by several factors.

Most people think of private property rights when discussing property rights.

First is the fact that when the term "property rights" is used, the listener usually subconsciously inserts the word "private." In addition to private property, rights there are also public property rights and common property rights. Private property rights, in theory should apply to individuals but often private property rights is applied to publicly chartered organizations.

Property rights may be justified by natural rights or through logic for pragmatic reasons.

Second, property rights can be justified by "natural rights" or by logic and pragmatism. John Locke [1632-1704], a natural law philosopher argues that humans have a natural right to the ownership of private property. This natural right to property stems from the fact that the individual has a right to their own labour and therefore a property right to the fruits of that labour when mixed with un-owned resources. Labour is the justification for property. Locke places two limitations on this right. He argues that the individual has a right to acquire property so long as nothing is wasted and there are sufficient resources left for others. (Locke, pp 115-126) The emotional context of property rights associated with the natural rights approach that also complicates the discussion and analysis of the structure of property rights in a social system.

A pragmatic justification of property rights is based on defining property rights to achieve an objective. That objective could be an optimal allocation or to maximize the monetary value of assets. Property rights justified on natural rights tends to be static while pragmatism tends to justify property rights that evolve to meet the needs of changing circumstances (population, technology, environment, etc.). Hayek, a market oriented economist, seems to focus on a pragmatic approach to property rights:

Simplistic concepts of property rights do not apply to all things.

*Where the law of property is concerned, it is not difficult to see that the simple rules which are adequate to ordinary mobile "things" or "chattel" are not suitable for indefinite extension. We need only turn to the problems which arise in connection with land, particularly with regard to urban land in modern large towns, in order to realize that a conception of property which is based on the assumption that the use*



of a particular item of property affects only the interests of its owner breaks down. . . . .

Chattel property is not the same as intellectual property.

*The problem of the prevention of monopoly and the preservation of competition is raised much more acutely in certain other fields to which the concept of property has been extended only in recent times. I am thinking here of the extension of property to such rights and privileges as patents for inventions, copyright, trademarks, and the like. It seems to me beyond doubt that in these fields a slavish application of the concept of property as it has been developed of material things has done a great deal to foster the growth of monopoly and that here drastic reforms may be required if competition is to be made to work. (Hayek, pp113-114) . . .*

Private property rights of individuals are not the same as private property rights for legal entities such as corporations.

*It seems to me that, in general, the freedom of the individual by no means need to be extended to give all these freedoms to organized groups of individuals, and even that it may on occasion be the duty of governments to protect the individual against organized groups. It appears to me also as if historically in the field of the law of corporations we had a situation rather analogous to that in the field of the law of property to which I have already referred. As in the law of property the rules developed for ordinary mobile property were extended uncritically and without appropriate modifications to all sorts of new rights; and thus the recognition of corporations as fictitious or legal person has had the effect that all the rights of a natural person were automatically extended to corporations. (Hayek, p 116)*

Hayek is quoted at length because he is a market-oriented economist who recognized that property rights must evolve with changes in the economy and technology. He also recognizes that the form the property rights laws take is crucial to the operation of a market system.

## PROPERTY RIGHTS AND MARKETS

Nonattenuated property rights facilitate the operation of the market.

The operation markets and market exchange is facilitated by strong or "nonattenuated" property rights. The benefits and costs of exchange and use of resources and goods affect only the parties to the exchange. The welfare of individuals who are not engaged in the transaction or use of economic goods is not altered.

Furubotn and Pejovich define property rights as:

Property rights are sanctioned behavioral relations among the members of society.

*Property rights are understood as sanctioned behavioral relations among men [sic] that arise from the existence of goods and pertain to their use. These relations specify the norms of behavior with respect to goods that each and every person must observe in his daily interactions with other persons, or bear the cost of non-observance. The term "good" is used here for anything that yields utility or satisfaction to a person. Thus, and this point is important, the concept of property rights in the context of the new approach applies to all scarce goods. The concept encompasses both the rights over material things (to sell my typewriter) as well as 'human' rights (the right to vote, publish etcetera). The prevailing system of property rights in the community is, then, the sum of economic and social relations with respect to scarce resources in which individuals stand to each other. (Furubotn, p 3)*

These "sanctioned behavioral relations" include both the formal sanction of legal



Property rights may be sanctioned by legal systems or social institutions.

systems and informal sanctions of social institutions. A sense of community, social values, religion, politeness and respect for others are probably more efficient ways to enforce property rights than the enforcement of laws by the state. Property rights may be "private" property rights or "public" property rights.

Strong or nonattenuated property rights that facilitate the effective use of market exchange have three basic characteristics:

Nonattenuated property rights are:

1. exclusive
2. enforceable
3. transferable

- Exclusivity
- Enforceability
- Transferability

### Exclusivity

It is impossible for the property rights to any good or resource to be completely exclusive. However, the greater the exclusivity the more likely market exchanges will produce improvements to the welfare of society. An exclusive property right is one where all the benefits and cost associated with a choice fall on the person(s) making the choice. If Nigel drinks a cup of tea, the costs and benefits of that act fall (for the most part) on Nigel. A case of nonexclusive property rights occurs when Harold smokes a cigar in church. The smoke may impose significant costs on other members of the congregation. It might be possible that Aunt Mabel and others in the congregation could contract (or pay) with Harold not to smoke. If a voluntary contract is made, Harold is better off because he prefers the payment to smoking. Aunt Mabel and the congregation are better off because they were willing to pay Harold not to smoke. This assumes that Harold had a property right to smoke. An alternative view is to ban smoking in the church by assigning the property rights to smoke free air to Aunt Mabel and the others. If Harold wanted to smoke, he would have to contract with the congregation for the right to do so.

Nonattenuated property rights are:

1. exclusive
2. enforceable
3. transferable

### Externality

The failure of exclusive property rights results in three problems in the market. First is the problem of "externalities." The example of second hand smoke in the previous paragraph is an example. Pollution from a steel mill or odor from a pig farm are other examples. A negative externality results in "too much" or over use of a resource or good since the marginal costs to society exceed the marginal cost to the economic agent who makes the decision. The Environmental Protection Agency was created to deal with many of the problems of negative externalities.

Externalities occur when costs of benefits affect individuals who are not a part of the economic activity (exchange, production or consumption).

Externalities may also be positive. The marginal benefits to society are greater than the marginal benefits to the decision maker or economic agents engaged in an exchange. If I landscape my front lawn, it may increase the property values of my neighbor. The benefits to my neighbor are not taken into account by my decision. In general, the market signals an under utilization of goods and resources that have positive externalities

### Public Goods

A second problem is that of "public goods." A public good is one in which the marginal cost of an additional user is zero and it is

It is impossible to exclude individuals from the use of a public good and the marginal cost of an additional user is 0.

Everyone has access to a common property resource but the user marginal cost is greater than 0. Rights to use are established by "capture."

Property rights can be enforced or protected by duty, respect for others or by the state

A shift of the economy to greater emphasis on information and intellectual property coupled with changes in technology make it more difficult (and costly) to enforce property rights.

impossible to exclude anyone from its use. National defense is often used as an example of a public good. There are other goods like roads, bridges, etc. that may be treated as public goods even though it is possible to exclude users. These are sometimes referred to as "quasi-public goods."

### Common Property Resources

The third property rights problem is "common property resources." A common property resource is one where users are not excluded but the marginal cost of users is positive. Garret Hardin's 1968 article, "Tragedy of the Commons" argues that common property tends to be overused and can be driven to extinction. Passenger pigeons, whales, American bison, and fisheries are often cited as common property resources. The property rights for these common property resources are not clearly defined and are "fugitive" resources; whoever captures the resource has ownership rights. It is in the interests of the economic agents to capture as much as possible as quickly as possible. The result is the market signals an overuse of the resource. Treaties and government regulation may be used to establish property rights that will result in a more economic use of the resource. International treaty protects whales. State fish and game departments may sell license and regulate the capture of game.

Externalities, public goods and common property resources are fodder for debates between pro and anti market advocates. The economics of non-exclusive property rights will be covered in more detail in later chapters.

### Enforceability

The establishment of property rights is fundamental to society. Social institutions and a sense of community (with a respect for others) establish the nature of property rights. John Locke, Adam Smith Karl Marx and many other writers have argued that one of the functions of government (or the "state") is to define and enforce property rights. In a world of chattel and real property, property rights can be defined and enforced. In a world of intellectual property rights, computers, copy machines and all manner of devices to copy and transmit intellectual property with 0's and 1's, the enforcement of property rights is more problematic. As the society has shifted to greater emphasis of an "information" economy, intellectual property has become more important. Music, computer software, books, and knowledge of how to do things has made the enforcement of property rights and market exchanges difficult in many cases. The development of technology to electronically copy and transmit information has increased the problems of enforcing property rights to that information.

Copyright and patent laws are examples of attempts to define and enforce property rights. Pharmaceuticals, DNA and knowledge are often the source of legal action. As the technology to develop, copy and transmit information improves, the enforcement of intellectual property rights will become more difficult and expensive to enforce. Many interesting economics questions will accompany these changes.

It may be difficult to transfer property rights for social or physical reasons.

Neoclassical microeconomics is based on a consequentialist ethic called "utilitarianism."

## Transferability

In many cases, it is technically impossible to transfer property rights.

The property rights to a person's height or athletic skill cannot be transferred. I cannot become a professional basketball player by purchasing a player's height or skill. I might hire some one to coach me but there is no way to transfer property rights to height and skill. However, with the "advances" in science it may be possible to genetically modify a fetus with DNA from a person who has some physical characteristic that is desired.

Often society will choose to prevent the transfer of property rights by making an exchange illegal. Buying and selling children is technically possible but societies usually choose to make it illegal. The Organ Transplantation Act of 1984 is another example. While it is technically feasible to transplant organs (heart, kidney, lung, pancreas, liver, etc.), the law makes it illegal to sell an organ for transplantation. However, it is now possible to travel to other countries to "buy" a kidney. There is some evidence that a black market (or illegal market) has been developing. There are also advocates of creating a market for transplantable organs.

## ISSUES IN PROPERTY RIGHTS

Property rights cannot be static and need to be structured to the type of property to which they apply.

Technological change and structural changes in the modern economy pose great challenges for society and the evolution of property rights. Conventional thought holds that the industrial economies are undergoing a structural change. There is a shift from manufacturing to information and services. This shift has implications for the way in which property rights are assigned. As Hayek has pointed out, property rights cannot be static; the property rights that apply to chattel property of individuals may not apply equally well to intellectual property. Property rights that work for individuals may not work for organizations such as corporations. The nature of property rights is a major concern for modern society.

Property rights provide a set of incentives to promote creativity.

Private property rights have long been seen as an important incentive for good stewardship. If chattel or land is "mine" I am more likely to use it wisely. This perspective is based on property rights that are exclusive and enforceable. A version of this view has been extended to intellectual property rights. If the property rights to ideas, inventions, patents, trademarks, copyrights are held privately, the owners will use them to the greatest advantage. These property rights also insure that individuals will have a strong incentive to create new ideas and inventions.

All ideas and inventions are the result of earlier ideas and inventions.

At the same time, all new ideas and inventions are founded on prior knowledge. The material in this text is a conglomeration of ideas that have been debated for as long as humans have communicated. There is little new material presented here. It consists of old ideas that have been restructured and combined with other ideas in new ways. Academic tradition and law provides for the use of these ideas. If authors do not appropriately cite sources of ideas, they are guilty of plagiarism. However, it is impossible to know the origins of all ideas that authors use.

The evolution and creation of knowledge and technology depends on the availability of knowledge from the past. If intellectual property rights are not flexible enough that the existing ideas and knowledge cannot be used to create new knowledge, progress and economic growth are impeded. Lawrence Lessig

argues that property rights must be balanced between provision of incentives and to allow others to use intellectual property to extend knowledge. Culture and knowledge progresses by building on the past;

Property rights laws need to balance the incentives of private property with the source of creativity; the intellectual commons.

*Creators here and everywhere are always and at all times building upon the creativity that went before and that surrounds them now. That building is always and everywhere at least partially done without permission and without compensating the original creator. No society, free or controlled, has ever demanded that every use be paid for or that permission for Walt Disney creativity must always be sought. Instead, every society has left a certain bit of its culture free for the taking—free societies more fully than unfree, perhaps, but all societies to some degree. (Lessig, Free Culture, p 29)*

The questions become;

- What form should intellectual property rights take if creativity is to be promoted?
- How can property rights be structured to provide incentives for creators to continue to develop new ideas?

*A free culture is not a culture without property; it is not a culture in which artists don't get paid. A culture without property, or in which creators can't get paid, is anarchy, not freedom. Anarchy is not what I advance here. Instead, the free culture that I defend in this book is a balance between anarchy and control. A free culture, like a free market, is filled with property. It is filled with rules of property and contract that get enforced by the state. But just as a free market is perverted if its property becomes feudal, so too can a free culture be queered by extremism in the property rights that define it. (Lessig, Free Culture, p xvi)*

*There is a history of just such a property system that is well known in the Anglo-American tradition. It is called "feudalism." Under feudalism, not only was property held by a relatively small number of individuals and entities. And not only were the rights that ran with that property powerful and extensive. But the feudal system had a strong interest in assuring that property holders within that system not weaken feudalism by liberating people or property within their control to the free market. Feudalism depended upon maximum control and concentration. It fought any freedom that might interfere with that control. As Peter Drahos and John Braithwaite relate, this is precisely the choice we are now making about intellectual property. We will have an information society. That much is certain. Our only choice now is whether that information society will be free or feudal. The trend is toward the feudal. (Lessig, Free Culture, p 267)*

As changes in technology pushes us into the age of information, the question of property rights will become more difficult.

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